

Tuning Radio Set Simple Operation

Every Fan Should Be Familiar With Details on This Subject.

Tuning a radio receiver is an art, but it is the sort of art within the reach of every one. The simple process of twisting the dials or setting the controls makes or mars the fullest enjoyment of broadcast reception.

In tuning the human ear plays just as important a part as in operating a player piano, or, for that matter, in playing a good piano by hand. We all know that many a fine piano or player piano has been made to sound "tin-panny" by some one with no ear for music. In such cases the person playing or operating the player instrument really thought the music produced was beautiful. Today countless radio sets are meeting the same fate at the hands of their owners, and sad to relate, even storekeepers and their salesmen in many instances have no adequate conception of how to rightly tune in the broadcast programs. Of course, there has been a wonderful improvement in the trade in this respect, and what I have stated and am about to state applies in greater and wider degree to the general public.

What Affects Tuning.

When we have come in radio to a reproduction of true vocal and instrumental tones what a pity that reception is marred because many who tune in either are unable to judge tone quality or else they want volume beyond the capacity of the number of tubes in operation.

Even tubes have their limitations, and when distortion occurs, not only when inferior speakers are used, but when the more powerful ones are combined with sets, it is usually the result of forcing the set to a greater extent than the tube in the last audio stage will stand.

This forcing may be done intentionally, as in the case of dealers with loud speakers outside their stores who purposely "force" the apparatus in order to obtain volume rather than tone quality, for attention only. In other words, such dealers sacrifice tone value for advertising value. There is no doubt, though, that the raucous blasts emanating from many such outside loud speakers create a false impression in the minds of some people, especially with those who have never had an opportunity of listening in under favorable conditions.

Then there is the set owner who "likes it loud" and leaves his dials in such position that the loud tones come through so distorted that the result is simply a maelstrom of noise.

An exceedingly simple method to follow in tuning is to adjust your set to the loudest notes of the orchestra so as to avoid distortion. Let me explain how this will work out. Supposing you had happened to tune in at the moment when, according to the particular composition being played, an especially soft passage was being rendered, written, we'll say in musical parlance, "pianissimo." Hearing the music coming in very softly—granting that you were not an accomplished musician—you would turn up the volume control so as to bring the broadcast in louder. Even at that moment distortion may have set in, but because of the fact that the original music itself was being played very softly you probably would pass it by unnoticed. Leaving the controls set in this fashion, what is likely to happen in a few moments when a "fortissimo," or very loud passage, is reached by the orchestra? Recognizable distortion. Your ear tells you something is wrong. You readjust the dials and soon—if you have a good set and speaker—you get real music. And if you know how to tune you will leave the dials set in this manner even though a few moments later the volume dies down to the "faintest whisper." For—unless something else is wrong either at the broadcasting station or with your apparatus—the score requires again the playing of soft music and you are getting it just as the person attending a concert would get it, namely, as written.

I might call this tuning for tonal quality, as distinguished from the technical necessity of setting the dials at the right position in order to bring in a particular station. Don't think for a moment that it requires an exceptional musical ear to tune for tonal quality in a proper manner. All of us are able to distinguish between noise and music particularly, as I have explained, when that miracle known as sound pours from the speaker in its louder manifestations.

Some Other Considerations.

Other considerations sometimes enter and proper tuning of the sort described is predicated upon a good receiver, a good speaker and good tubes. Wrong combinations would, of course, be a good set and a poor speaker or a poor set and a good speaker. But so

important is the matter of tuning properly that even a poor combination can be bettered by careful adjustment of the dials and controls. Every one qualified to judge knows of cases where a good receiver has been combined with a speaker of inferior quality with the result that the set did not yield true vocal and instrumental tones with no characteristic element of beauty lacking, no unnatural quality added.

People seem to expect performance from radio that, under similar conditions, they wouldn't have any hope of exacting from, say, a motor car. The finest car in the world would be a dud with poor oil, poor gas or some one at the wheel who didn't understand how to run it. Radio, by comparison, is simplicity itself to operate, but, like everything else in this world of ours, it must be handled properly.

Take the operation of one's tuning in a distant station. It would never do in most cases to leave the controls in the same position when switching back to a local station. Distortion again. There must be readjustments for variations in power and characteristics of local stations. Let your ear be the guide in all cases. Any one can recognize a rattle in the loud speaker—no doubt that's a high and loud note coming in with a tremendous bang—tune it down until you know it's coming in nicely; that's all there is to this business of tuning for tone. Incidentally, the advice I give is not for the old-line radio fan who has been through the ropes, but for the average citizen desirous of getting the most out of his set.

Transformer-Coupled Audio Amplification

Transformer-coupled audio amplification, which for some time bowed to resistance and impedance coupling, again takes up its position among the leaders. The reason is clear enough. Resistance and impedance couplings were far superior, in quality of output, to the old transformer method, for which only very mediocre transformers were available. With the advent of many high-quality transformers, such as those of Pacent, General Radio, Ferranti, Amertran, Samson, Silver-Marshall, Thordarson, All American, etc., a return to popularity of the transformer-coupled amplifier was predicted, and this quickly proved to be the case. A short article, prepared by the technical staff of Radio Broadcast Magazine, has the following to say about the transformer-coupled amplifier:

"The conventional transformer-coupled amplifier consists of two stages. The overall amplification of such a system is generally around 300, and this is sufficiently high to give loud speaker reproduction with a moderately strong signal available at the output of the detector. The transformer-coupled system has the advantage that only two stages are required and can, therefore, be made quite compact. The plate current consumption of such an amplifier is fairly low and only moderately high voltages are necessary on the first stage. The quality of the results obtained depends primarily upon the transformers used and, for this reason, a certain amount of care is necessary in choosing the transformers that are to be incorporated in such an amplifier.

"The transformer feeding out of the detector stage should have a primary impedance that is somewhat higher than is necessary for that transformer used in the second stage. The higher impedance is necessary in the transformer feeding out of the detector tube due to the fact that the detector plate circuit generally has a somewhat higher impedance than the plate circuit of a tube used as an amplifier.

"If two transformers of different ratios are to be used, the rule is almost invariably to place the low-ratio transformer in the second stage. For commercial reasons, most manufacturers put a fixed number of turns on the secondaries of their transformers irrespective of the ratio required. The different ratio values are then obtained by winding on the necessary number of primary turns, this latter figure, of course, varying proportionally with the ratio. Thus, the lower the ratio, the greater the number of primary turns, and likewise, the greater the primary impedance. Proper 'C' battery on the amplifier tubes is absolutely essential if good quality is to be obtained. The 'C' battery voltage on the first stage should not be higher than is necessary.

"If a 171 tube is used in the last stage with a 40-volt 'C' bias, we can impress signals on the grid of this tube which have a peak value up to 40 volts. If the transformer has a ratio of 4 to 1, the peak value of the voltage in the primary will be 10 volts. If a 201-A tube is used in the last stage, we can obtain the value of peak voltage on its grid by dividing the voltage in the plate current, 10, by the amplification constant of the tube 8, which gives 1 1/4 volts. It follows then, that a 'C' battery bias of 1 1/4 volts on the first tube will be sufficient to prevent overloading."

THE KITCHEN CABINET

(© 1927. Western Newspaper Union.)
To set the face in the right direction, and then simply to travel on, unmindful and never discouraged by even frequent relapses by the way, is the secret of human achievement.

FOOD, ITS FUNCTIONS

No housekeeper who reads the current magazines should be ignorant in regard to the importance of food study. To know why her child is not thriving and to remedy it with properly balanced food is something every mother should learn.

There are a few general principles which if learned and borne in mind when supplying the food for the family will feed them correctly. First in importance is the point that all families differ more or less as to needs.

The outdoor worker who is doing hard labor can eat, digest and thrive on foods that would be injurious to an indoor worker. The growing child who is active will consume and care for as much food as the average man, because he is building a framework and covering it with good healthy muscles. Food supplies the body with what it needs for growth and energy.

There are certain elements which are essential to support life; many of them are found in small quantities in the body. When any one of these is lacking the health begins to break. These elements are carbon, oxygen, nitrogen, sulphur, phosphorus, iron, calcium, potassium, sodium, iodine and several others of smaller amounts. The foodstuffs which furnish these elements are:

Proteins which yield carbon, hydrogen, oxygen, sulphur and sometimes iron and phosphorus.

Fats are found in lean meat, fish, eggs, milk, cheese, peas, beans and lentils.

Fats are found in meat, butter, cream, vegetable oils, yolks of egg and nuts.

Mineral matter is found in water, fruits, green vegetables, meat, milk, whole wheat and other grains, and egg yolk.

Carbohydrates are found in rice, other cereals, potatoes, other starchy vegetables, fruit, honey and sugar.

The fats which yield carbon, hydrogen and oxygen—these are the heat producing. In cold weather we need more of such food to keep up the body heat.

Easy Luncheon Dishes.

With a cookie jar always replenished and a dish of fruit with a hot drink, one need never worry about an appropriate dessert. For something different try:

Jelly Fluff.—Take the white of one egg, unbeaten and one-half of a glass of jelly, beat until the mixture stands up well. Heap in sherbet cups and top with whipped cream.

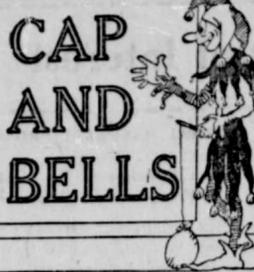
Caramel Cornstarch Pudding.—Brown one-half cupful of sugar in a smooth frying pan, then add a pint of boiling milk; stir until the caramel is well dissolved then add two table-spoonfuls of cornstarch well mixed with a little cold milk. Boil until the starchy taste is gone. Pour into sherbet cups and chill. Serve with a spoonful of whipped cream on the top of each.

Snowballs.—Spread cooked rice over squares of muslin wet with cold water. In the center place a canned pear, peach or apricot. Tie carefully and steam ten minutes. Remove the cloth and serve with a sauce made from the fruit juice.

Beef Collops.—Put a tablespoonful of butter in a frying pan; add one small onion chopped fine, a teaspoonful of minced parsley, the same of salt, and a few dashes of pepper. Stir in one tablespoonful of flour and add one pound of raw beef cut fine. Cook five minutes, stirring constantly. Serve hot on buttered toast.

Mock Terrapin.—Cut cooked calf's liver into dice. Put a tablespoonful of butter into a saucepan, add salt and pepper with a dash of paprika, and cook until the butter is slightly brown; add two tablespoonfuls of flour and enough beef stock to make a moderately thick sauce. Use beef extract and water for the stock if needed. Add a little chopped parsley, one-half cupful of cream, two hard-cooked eggs cut fine, a tablespoonful of lemon juice and the liver. Cook until the liver is heated through, add two tablespoonfuls of jelly or any canned fruit juice and serve at once on buttered toast.

Nellie Maxwell



HOW IT WORKED

A druggist who wanted to sell electric waffle irons was advised to employ an attractive young woman to cook waffles in the store. He was assured that the scheme would boost sales.

"How did it turn out?" asked his adviser.
"A smart gink married the girl the first week."

THEN HE WENT



He (at midnight)—I feel all wound up this evening.

She (wearily)—Your main spring must be broken, or you'd surely go.

The Young Lawyer

"And if, my son," the lawyer said, "My shoes you wish to fill, Remember that I got my start By working with a will."

Just to Do Something

Dentist's Wife—We must give the maid a little treat of some sort for her birthday.

Dentist—All right. I'll extract some of her teeth free.—Berlin Nagels Lustige Welt.

Fitting

She—I wonder why marriage is called "an institution?"

He—Because it is so hard to escape from, I suppose.—New York Central Lines Magazine.

Realism in the Movies

"Your star shivered most naturally in that scene."

"Had to."

"Heh?"

"We put her on ice."

Why Worry?

Dyer—Too bad about Niblick losing all his money.

Gowfe—He should worry! He made the course in two under par yesterday.

Rather Big-Hearted

Jerry—Is there only one cake of soap?

Bellhop—Sure!

Jerry—Tell the night clerk I'll take another room. I must wash my face.

GREATEST GOLD FIELDS



"What are the world's greatest gold fields."

"The big cities—you'll find gold diggers in every street."

Landing a Passenger

Ruth rode in my new cycle car In the seat in back of me; I took a bump at fifty-five, And rode on ruthlessly.

How Boy Friend Knew

Daughter—You know, dad, he always said he'd never marry until the right girl came along.

Dad—Well, how does he know you are the right one?

Daughter—Oh, I told him I was.

His Favorite Brand

Dave—Have you another cigar like the one you gave me yesterday?

Rod—Yeah.

Dave—Fine. I want to break my brother of the habit of smoking.

INSTALL CHAMPIONS NOW

Once again Champion reminds you that to enjoy maximum engine performance during the next twelve months you should install a complete new set of spark plugs now.

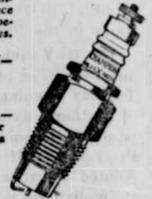
Champion is the better spark plug because of its double-ribbed silimanite core—its two-piece construction and its special analysis electrodes.

Champion X—for Fords

60¢

Champion—Cars other than Fords

75¢



CHAMPION Spark Plugs TOLEDO, OHIO

Callouses

Quick, safe, sure relief from painful callouses on the feet.

At all drug and shoe stores

Dr. Scholl's

Zino-pads



Put one in—the pain is gone

Heroic Sleeping

Sir Norman Rae said:

"I like everything American except your sleeping porch. The American winter climate is a very cold one and to sleep out in the open with the thermometer at zero is a dangerous thing to do.

"And you mean to say that you sleep on this sleeping porch all winter long? I said to a frail-looking lady in a western city.

"Yes, all winter long," said she.

"Isn't it frightfully cold?"

"Cold?" said the lady with a shiver. "Indeed it is cold. Why, when Doctor Gore took out my appendix last winter it was chapped."

You can fool some of the people all of the time; and, maybe, they're happy.

Silence may be golden, but a good deal of speech is brazen.

Green's August Flower

For Indigestion, Dyspepsia, etc. Relieves Distress after Hurrried Meals or Overeating. Being a gentle laxative, it keeps the digestive tract working normally.

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By giving baby the harmless, purely vegetable, infants' and children's regulator.

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