

GCT.

WOULD you kindly advise me as to the meaning of the term GCT? I have encountered this term quite often in reference to transmitting in journal QST.—S.W.B. (Stratford).

As far as can be ascertained the letters stand for General Central Time, and refer to the mean time adopted by the Central States of America. There are three main divisions of time on that Continent: Pacific (PST), Central (CST) and Eastern Standard Time (EST).

Low Filament Valves.

"VALVE" (Havelock North) wrote last week asking some questions regarding low filament consumption valves. In our replies we stated that no alteration was to be made in the wiring of the set. This is correct, but it should be noted that the set would have to be reneutralised as for any change in the valves. A suitable method was described in the "Beginner Corner" of last week's issue.

Dynamic Cone Rattle.

I HAVE a five-valve factory-made set to which I have recently added a moving coil speaker, with high power amplifier. Although results are very good I know from hearing others that it is not quite as good as it should be. When the volume is turned up very loud there is distortion, which has the effect of a rattle in the speaker. As the moving coil and audio amp. give perfect results on a gramophone with pick-up direct, the trouble must be in the radio. (1) Would you please tell me what is the most perfect detector system? (2) Is plate detection better than the standard grid leak? What valve would you recommend for the best possible result? (3) Is there any chance of distortion in the radio frequency valves? The set does not oscillate when receiving local stations. Thanking you.—"QUALITY" (Hillgrove).

(1) The best detector from a point of view of quality is the plate bend detector. This utilises a high impedance valve with a negative grid bias. Omit the grid leak and condenser.

(2) Yes, for local reception; but not so sensitive.

(3) Yes. Although the valves may not be actually oscillating, they may be on the verge of oscillation, in which case distortion is inevitable. Also, when receiving very loud pieces, it is always advisable to use a lower resistance grid leak, but when volume is reached to warrant this change an anode bend detector is indicated.

It seems that the correspondent's trouble lies in the amount of filament current he is giving the detector and audio valves. Through an incorrect adjustment of current distortion can be caused, amplified and passed on to the speaker. Other factors may contribute to this—the last valve may be incapable of handling the volume; a transformer may not be acting up to scratch, or the grid leak may need replacing. Go over the set systematically, using the methods previously described, and in all probability the trouble will be tracked down.

Transmitting Morse.

I AM writing to you to see if you could inform me as to whether I will have to obtain a transmission license to transmit Morse messages. I am taking up a course so as to pass for a license (experimental), and so

as to learn the Morse. I have been advised that the best way to learn it properly would be to do the oral and also the practical (to transmit Morse to a friend of mine, and to have practices, say, twice a week). It is as to this that I would like to know about, in reference as to whether I will need a license.—"VALVE SET" (Lower Hutt).

Before any transmissions by radio are permitted an experimenter's license must be obtained. You could, of course, practice with a buzzer.

Short-Wave Without an Earth.

MY short-wave set works better and louder with the earth off. Why does that happen? The set is of the usual three-valve type.

This is usual for a short-wave receiver. These, owing to the high frequency current received, are in a more oscillating condition than the broadcast receiver. Tuning has to be extremely sharp so that anything that would broaden this tuning must be avoided. A set will work nearer oscillation point with the ground removed, and as the short waves travel at a very high frequency the intervening space between ground and set is traversed without a conductor.

Reception Intermittently Spoiled.

IN your issue of December 14 you advise users of receiving sets of six or more valves to limit the length of their aerials to 40 or 50 feet. Presumably this includes lead-in. I have a 6-valve set using: "A" 6 volts, "B" 90 volts, "C" 4½ volts, with a cone speaker. My aerial is about 60 feet above the ground, the nearest earthed conductor being a small wooden shed with iron roof, which would be earthed only in wet weather I suppose, wood being a poor conductor. This shed is right under the middle of the horizontal part of the aerial, which part is about 100ft. long. Is this too much? I seem to pull in most of the usual stations. All YA's, except 4YA in the daytime, 2ZK and 2ZF in daytime usually, most of the other small N.Z. stations at night only. 2ZM sometimes comes in quite strongly. The Australian stations only at night and generally not till fairly late now. 2BL, 2TC and 4QG best, but 2GB sometimes very good. The Japs. have been very poor lately—too much daylight I suppose. Melbourne is also very poor, but 7ZL has been fairly good of late. Of the New Zealand stations 1YA is sometimes given to fading; 2YA is strongest, of course, but greatly offends with blasting; 3YA the best station at night; 4YA usually fairly weak. The best music seems to come from 2YA, but 3YA has easily the best collection of vocal talent, especially the contralto voices. Miss Nellie Lowe seems to "Come over" always in much better voice than any singer I have heard yet. Her nights are eagerly watched for. Listeners here are sometimes troubled with a peculiar interference of which we have so far not traced the source. A terrific drumming howl which quite drowns all other reception. It is irregular in occurrence, sometimes being absent for weeks at a time, sometimes being present for four or five

Questions and Answers

days on end. Three sets, quite close together, of which mine is one, seem to get the nuisance the strongest, proving that it is quite local. There is no licensed sending set in the district, so we are very puzzled. Perhaps some of your experts could enlighten us. Power-line leakage doesn't seem feasible on account of the irregular intervals between onslaughts of the nuisance.—Tongariro, Raetihi.

The objection to long aerials with powerful sets is that they collect too much noise. Certainly they give more signal strength. The trouble sounds like a power leakage. You should communicate with the district engineer.

Radio Frequency.

"IN a letter to a correspondent you said that the radio frequency valve might be broken. What do you mean by radio frequency?"

THE sounds from the studio are carried to the aerial by a current of electricity. This current cannot be heard by the ear because of two reasons: (1) it travels too fast; (2) it is too weak. Two processes are necessary, the sounds must be steadied up and they must be made louder. This

is the purpose of the wireless set. The fast travelling current from the broadcasting station enters the set and is conveyed to the radio or high frequency valve which strengthens the signals but does not steady the current up. This is left for the detector valve. Low frequency valves amplify or make louder the signals which have been steadied up by the detector valve.

Transformer Terminals.

"I AM constructing a set and find that my transformers are marked IP, OP, IS, OS, while the one shown on the diagram is marked primary P, HT secondary G GB. What does it all mean?"

THE letters on your transformer are those formerly used and they denote input and output primary, and input and output secondary. There are two coils in the transformer, the primary and the secondary. The end into which the current enters is called the input. It leaves by the output. The markings on the newer type of transformer denote the points to which the terminals of these windings should be taken in the average set. IP usually comes from the B plus terminal (IP = B plus), OP usually goes to the plate of the valve, hence OP = P. IS comes from the grid bias (G) battery (IS = GB). Finally OS goes to the grid of the valve and is marked G.



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