

## Questions and Answers

(Continued from page 15.)

except that it will not cover the whole of the broadcast band. 12M on 247 m. comes in on my dial reading 13, 13, 5, and 72L on 517 m. on 95, 86, 82. Should not the set tune between 200 and 550 metres?

A.: Not necessarily. You seem to be covering the bands where there are any stations worth listening to. Take a few turns off the first two coils.

2. You mention that you hope to match the coils so as to bring out a single or two-dial receiver. Has anything been done yet?

A.: Plenty has been done, but still we cannot give specifications that we could guarantee would give you perfectly match coils. You see how difficult it would be in your case to put the three coils on one condenser. It seems almost impossible to get the balancing properly (when using reaction) over the whole band. We think our readers will have to let us off that promise.

**TUKEKO (Hinuera):** My set has developed a crackling noise, but if I disconnect the earth and let it rest on the metal frame beside the terminal a great deal of the crackling is eliminated. Is there a short in the wiring somewhere?

A.: It seems very much like it, although the trouble may be due to a broken-down condenser. We suggest you take the chassis out of the cabinet and examine the wiring, very carefully tugging at the different joints likely to cause trouble. If you cannot get to the bottom of the trouble in this manner it will be a case of sending to the agents for repair.

2. Sometimes 2YA is not satisfactory strength, and the new Wellington station comes through at tremendous volume. I cannot fathom this.

A.: Neither can we. Reports of the reception of the two stations conflict. They can be explained only by atmospheric conditions in relation to their wavelengths. Many people complain that 2ZW comes in anything but well, and others point out that it is one of the best stations they receive. Probably neither station is at fault.

**OVERTONE (Christchurch):**—Can you give me advice on the purchase of a pick-up suitable for my a.c. set?

A.: We regret we cannot direct you to any particular make, as this would be against editorial practice. We have tested several pick-ups, and the reports have appeared in these columns. The best and

most expensive of these is the Audak, which has a frequency response from below 50 to well over 8000 cycles. Your set is probably limited to about 8000 cycles, with a sharp cut-off at about 5000 or 6000.

**UNCERTAIN (Christchurch):**—Could you advise me as to where I could obtain sufficient data on the construction of an efficient "A," "B," and "C" eliminator using a metal rectifier?

A.: You could obtain all the information you require from the 1931 "Radio Guide."

**W.K.L. (Nelson):**—Can you supply me with a circuit of the latest and most satisfactory battery-operated receiver? This should have three or four valves.

A.: We advise you to wait for the "Kestral" Three. This is easily the best receiver of its type, and will be described in these columns within a fortnight.

**CRYSTAVOX (Dunedin):**—I have read about a loudspeaker which works directly from a crystal set, having incorporated in it a type of microphone bar amplifier? Where could I obtain one of these speakers?

A.: We do not know anything about the agency for this set. Your best plan would be to purchase a microphone bar amplifier, and use this in conjunction with a good speaker. You would reach the same end, and would do so far more economically than if you went to the trouble of importing the speaker described; but microphone bar amplifiers, and the type of speaker you mention, as well as the book from which you took the particulars, are all long out of date. The best plan to get loudspeaker reception from a crystal set, if you cannot get it direct, is to make a simple one or two-stage amplifier. Modern valves are very light on batteries, and consequently economical to run.

**N.W. (Dunedin):**—I am troubled with interference by a nearby lighting plant. How can I remedy this?

A.: See replies and diagrams published in response to a somewhat similar inquiry, published elsewhere in these columns. The most satisfactory method is to use chokes

and by-pass condensers. The choke should have 150 turns of number 18 copper wire on a three-inch former. Your log appears to be quite a creditable one.

**HAROLD (Dunedin):**—I have an 8-valve combination electric set, and I am interested in shortwave. Would it be possible to use either the Night Hawk or Sparrow Hawk adapter?

A.: Use the Sparrow Hawk adapter, as described in the 1931 "Radio Guide." It would cost you roughly £3/10/-.

2. Would this be as good as the super. het. adapter described in the "Guide"?

A.: It would be easier to build and work though it would not give you the same signal strength.

### "Midget Condensers"

OWING to heavy pressure on space, the continuation of last week's technical article on "Midget Condensers" has been held over for completion next week.

**RANGER (Napier):**—How many turns would I wind on a high-frequency choke for the Ranger Two?

A.: A suitable choke was described about three months ago in the "R.R." It consists of a thousand turns of wire on a former, of an average diameter of  $\frac{1}{2}$  in., the wire to be wound in slot, about 36 or 38-gauge giving the best results.

2. Will a .0005 and an 11 moving and 12 fixed plates condenser do for the Ranger Two?

A.: Yes; the capacity of the condenser you mention is about .0003, and will do quite well for reaction.

3. Can I use a Philips valve A310 and a Mullard PM3 for the Ranger?

A.: Both these valves are out of date. The modern PM 3 has a filament voltage of 4, not 3.3 as you state. However, you could use both valves until you were able to get the newer types.

**J.D.L. (Ruawai):**—A certain brand of condenser is advertised as having a phase angle difference of  $\frac{1}{25}$  minutes. Phase angle I understand, but 20 minutes is an extremely long time when dealing with electricity, so would you please explain?

A.: In all circuits of alternating currents such as those including condensers, there is a rise, fall and reversal of electric pressure or voltage, and also a rise and fall of current or amperage. The rise and fall of the voltage is not always in exact step, or in phase with the rise and fall of current. In an ideal condenser, which does not exist in practice, the current rise and fall would lead the voltage rise and fall by one-quarter of a cycle or 90 deg. All condensers throw the current and voltage slightly off from the 90 deg. ideal difference. The more the condenser throws the current and voltage out from this ideal difference the greater is the loss of energy. The amount of displacement is called phase angle difference of the condenser. The phase angle difference is the measure of poorness in a condenser—the greater the phase angle

difference, the poorer the condenser. In fixed mica condenser the phase angle difference generally becomes less and less as the capacity of the condenser decreases. A small fixed condenser has a slightly less phase difference than a large one of the same type. Phase angle difference is therefore measured in degrees or in parts of degrees. A sixtieth part of a degree is called a minute. Therefore to say that your condenser has a phase angle difference of from 20 to 25 minutes implies that the angle is less than one degree, which indicates a good condenser.

2. Is there an officially recognised for radio servicing, etc.?

A.: If you supply us with the word between "recognised" and "for" we will try to answer your question.

3. Is one allowed to have an h.f. oscillator for set testing purposes, and not hold a transmitting license?—Yes.

**T.R. (—):**—I wish to construct a 20/30 heavy choke and have stallion already cut.

A.: Your best plan is to make a bobbin so that it will exactly fit the window, that is 5/8 in. x 1 7/8 in. Fill the bobbin with 34 gauge wire."

## Laboratory Jottings

### Dual Gramophone Motor

WE have received from Standard Telephones and Cables a dual gramophone electric motor and have given this a thorough test under all conditions. The "Dual" is constructed upon a new principle which ensures even, silent operation. The armature windings only rotate as different from the normal gramophone motor in which the iron core moves.

This has the effect of making a quick start and stop, and in our test this was a noticeable feature. It means that no sooner is the automatic stop touched than the turntable almost immediately comes to rest. This latter attachment is most efficient and is one of the best arrangements for automatic stopping that we have seen. It works, and works well.

The finish of the motor is excellent, reflecting most favourably upon the manufacturer. It is a motor which we consider should give every satisfaction.

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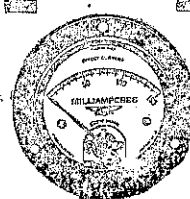
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