

valves in this set counteract the intense fading of 2YA?

A.: No. Multimu valves are not designed to do that. You are thinking of automatic volume control. If your set were fitted with this, then it would, to a certain extent, counteract the fading.

2. During an item the tone will often change suddenly from base to treble without my touching any controls on the set. Why is this?

A.: There is something wrong with the audio side of your set. Quite possibly there is a fault in the tone control system, but it would not be possible to direct you to do it.

3. What would cause a sharp metallic click in the speaker, particularly during an item or static?

A.: It is quite possible that the noise to which you refer is being picked up on the aerial, and it is due to outside interference over which you have no control.

Replies by Mail.

We regret that owing to the intervention of the holidays, many replies by post are temporarily held over. They will be dealt with, however, as soon as possible.

Such troubles as two and three are very difficult to locate by correspondence; you would need to make a systematic search of your set.

R.H.R. (Lower Hutt).—See our reply to a previous correspondent concerning the loop antenna for the Super Six.

2. Can I tap the present broadcast loop for shortwave work?

A.: No; it would not be satisfactory. N.D.B. (Tolaga Bay).—Will the coils for the s.c. "Cathode" super be the same as the Super Six, and will they be capable of being home constructed?

A.: They are quite capable of being home-constructed. They are entirely different from the Super Six coils.

2. Will the "Cathode" super be adaptable for battery use?

A.: It can be changed over the battery quite simply.

OSCILLATOR (Thames): Could you supply a reliable book describing fully the super heterodyne circuit?

A.: We advise you to write to Te Aro Book Depot, Wellington, who have quite a large supply of books that could help you. Bangay in "The Principles of Wireless Telephony and Telegraphy" gives a very good chapter on the super het., but it is an expensive book, and contains many subjects other than super hets.

KIT SET 3 (Dunedin): Could you describe 600 metres coils for my commercially-made set?

A.: We cannot undertake to design coils such as this, but if you add half as many turns again to the existing numbers, you will probably be somewhere near the mark, and this will give you a jumping off point from which you could make any adjustments you wish. Your circuit is not really designed for all wave work, so we are not surprised that you cannot get good results on the 80-metre coil. A balancing condenser in the aerial may possibly help you.

H.H.M. (Southland): I have constructed the Differential One with a fixed condenser between the plate and reaction coil, but when I put the aerial on and turn on the set, there is a loud hum and frying noise. How should I remedy this?

A.: Follow the instructions which appeared with the set, and do not make unnecessary alterations such as you have done.

NEW CHUM (Christchurch): Your aerial will be better with the lead in running straight down to the set. Generally speaking the total length of your aerial should be 100 feet, including the lead in. The poles are not too high, but it would be better if you could get the shorter one still higher.

R.H.B. (Auckland): Can the audio valve obtain current from the same winding as the detector and radio frequency valves?

A.: Yes; providing, of course, you are not overloading the transformer.

2. What condensers should shunt the bias resistance?

A.: From .25 to 1. mfd. Your valves are correct.

Radcord Crystal Set

Constructor's Results

"CURIEUX" (Napier) writes: I have built the "Radcord" crystal set into a copper cabinet, and have had good results. Each evening 2YA, Wellington, comes in softly but clearly enough to recognise tunes. The list of stations heard numbers six, the five others being: 2ZH, Napier, 100 watts; 2ZB, Napier, 7 watts, a harmonic of short-wave amateur station; ZL2FG, Napier; and 2ZI and 2ZL, Hastings. The two latter are about 11 miles distant by air, and have a power of somewhere between 12 and 14 watts. My aerial is 40 feet high at the far end and about 22 feet at the lead-in end, the main span being about 30 feet, and the earth consists of 3 5-foot pipes driven into the ground six feet apart.

The detector is a home-made one, fitted into the empty casing of an old semi-permanent detector. In the cup portion is fitted a piece of treated galena type crystal, and set in the head of the plunger rod is a sharp piece of metallic arsenic. I have had 2YA using crystal and cat's whisker, but not quite as well as when using the above detector.

The Advance Short-Wave Set

(To the Editor.)

I AM pleased with the results obtained with the Advance A.C. short-wave set. I have constructed several battery models with and without S.G. valves in the past, but none have given the satisfaction the Advance is giving. The power supply is from a power-pack designed for about 100 mls at 250 volts, and is much bigger than necessary. Voltage is regulated by Resistograd, the 8000 ohm resistance being eliminated. There is absolutely no hum from the "B" supply, and no tuneable hum, although the 1 m.f.d. condensers by passing the filaments were not used.

The push-pull stage was eliminated, so the receiver is only 12 inches long instead of 18 inches. The output of the first audio is, however, fed into the pick-up jack on my Loftin Four for loudspeaker work. It was here a little difficulty occurred. A 1:5 transformer was used for the coupling—result, hopeless distortion and terrific hum from the speaker. A 3:1 transformer was then tried, but results were no better. The step-up transformer was then replaced with a 1:1 output transformer, and this proved to be entirely satisfactory. Whether the amplification is too great with the step-up coupling I do not know, but it would appear so. The gain with the present arrangement is quite sufficient, all the main American stations coming in with the volume of 2YA when conditions are good.—I. McMillan (Christchurch),

A "Pencil" Resistance

A MOST useful resistance for many purposes can be made out of an ordinary lead pencil, which should preferably be of the 2H grade.

Sharpen the pencil at both ends, and then at each end make an electrical connection by wrapping the lead points with several turns of fine bare wire. Afterwards a layer of silver paper may be placed over the turns of bare wire, and then, over the tinfoil layer, a few turns of heavier wire may be wound on and retained permanently and securely in position by means of a spot or two of liquid glue. A pencil got up in this manner has a resistance of something like 300 ohms—the harder the pencil, of course, the higher being the resistance.

In testing out delicate instruments, voltmeters, ammeters, and so on, it is a very handy little device. Attached to a "B" battery, also, it will act as a safeguarding resistance, enabling the current for the valves to flow freely, but absorbing the heavy flow of current which would take place in the event of any accidental short-circuiting of the battery.

Making Aerial Joins

IT is sometimes necessary to make a joint in the aerial wire, either because the latter has broken, or perhaps, more frequently, in order to extend the length of the aerial. This latter requirement often crops up when temporary aerials are slung between trees for out-of-doors radio working. The following will suggest a very ready method of effecting an efficient joint in a length of aerial wire.

A short length (up to six inches) of narrow bore copper or lead tubing is necessary. A portion of the casing of a length of lead-covered wire makes an excellent article for this job. Lay the ends of the aerial wires to be joined

parallel with each other and slip the short length of copper or lead tubing over them. Flatten the tube, and then, by means of a pair of pliers, twist both ends of the tube a few times.

The resulting joint will be mechanically strong and electrically efficient. Indeed, if the ends of the twisted tube are carefully stopped up with Chatterton's compound, or some similar substance, in order to prevent the access of air and moisture, the joint will be to all intents and purposes quite permanent in its efficiency.

Tips and Jottings

AS semi-variable condensers are not usually intended to withstand high voltages, it is not wise to place them between filament and plate, or where the full voltage of the battery will be impressed upon them.

WHEN using a semi-variable condenser in the output circuit, or where it may be called upon to withstand a considerable voltage, it is a good precaution to introduce a large fixed condenser in series with it.

WHEN taking readings with a voltmeter, remember that the instrument will take some current whilst the reading is being made, and only a high resistance voltmeter can give an approximately accurate reading.

A GOOD rough-and-ready test if the insulation of a large condenser is to charge it from a battery and then stand it aside over night, and in the morning see if a spark can be obtained by touching the terminals. If so the condenser is O.K.

AFTER cutting three-ply wood it generally has rather splintery edges, and the simplest and nearest way to round these off is to lay a fairly large piece of coarse sandpaper flat on the bench and rub the wood along this, so cleaning up the edges.

T.C.C. RADIO CONDENSERS

The Hall-mark of ACCURACY and QUALITY.

Enquire from your nearest Dealer.

Sole N.Z. Representatives for T.C.C.:

TURNBULL & JONES Ltd.

AUCKLAND, WELLINGTON, CHRISTCHURCH and DUNEDIN.