

keeping in sight the fact that I am 14 miles from town?

A.: You have a good combination in at present, but you can reduce the filament consumption by substituting the PM 4 by an AA409 type, and if necessary the PM3 by the new .06 type of valve.

3. What grid bias should I have on the present valves?

A.: You require 9 volts on B409 and if you use PM 3 for second audio use three volts.

NIGHT HAWK (Wellington): I cannot make the Night Hawk oscillate. 2YA comes in well but at 0, that is with the condenser closed. I have tried putting a fixed condenser of .001 in series with the fixed plates, but it makes no difference.

A.: You can make the set oscillate by connecting a .0001 condenser from one of the sets of fixed plates to the moving plates, or by winding 50 turns on your reaction coil.

2. I find that the "C" battery chokes the power valve, and yet, when I put another valve in the set, it works quite well.

A.: As far as we can see there is no reason why it should do this, especially if you are using the right bias on that type of valve. As a matter of fact the valve you are using requires very little bias, only 9 volts at 180.

PAT (Hokianga): Can I use grid bias on my power valves, two 603's?

A.: Surely with two 603's, which we presume are in push-pull, you have grid bias? If you are not using a "C" battery then there is something radically wrong with your set.

2. I intend to install the Pierce earth system. Would it improve reception?

A.: It would be an interesting experiment, but we cannot guarantee that it would improve your reception.

3. Would it be possible to put a pentode in an ordinary set?

A.: It can be installed in an ordinary set merely by connecting the auxiliary grid to B+, but the best cannot be got out of it unless a special output filter as described is used.

F. J. (Tikorangi): Music from my four-valve set is harsh and distorted. The set rattles when the volume is turned up. I am using a horn speaker.

A.: Distortion is arising probably in your speaker, as your valve combination appears to be quite satisfactory and your transformers are standard.

2. If I changed over to r.c. amplification would I be sure of getting pure reproduction?

A.: No; r.c.c. has very few tonal advantages over a good transformer-coupled amplifier.

3. Is PM5B suitable for detection and i.f. amplification?—Yes.

4. Is there a battery operated L.W. out yet?

A.: Yes, but it requires 280 volts d.c.

5. Would the one L.W. amplify as much as one transformer coupled stage?—Yes, more.

6. Would I get better results with the Beverage aerial if its height were about 30 feet?

A.: If by results you mean increased noise, yes. Otherwise, no.

FRAMBOISE (Auckland): The set when tuned on goes for a while, then stops for five minutes, shudders like Morse, and then rights itself.

A.: This appears to be a loose connection or something wrong with one of the valves. Try tapping them to see if you can cause the trouble. Move your set when it is operating to see if it will stop. You are using a 112A valve in the second last stage. This is incorrect, you should use 201A.

2. My set is an old model. Would it pay me to change to the Outspan Five?

A.: The Outspan Five would be more sensitive, and you would get better results.

3. What would be the cost for a firm to do the job?

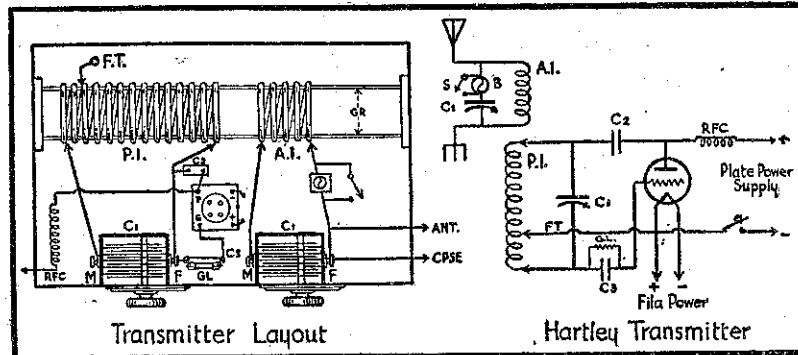
A.: It depends upon what can be used from your present set. The job should cost you no more than £8 or £10, but it might be considerably less if most of the parts could be supplied from your present set.

4. The "C" battery does not seem to affect the machine. Why?

A.: Providing it is not flat, and your valve is in perfect order, it is difficult to explain why it will not have any effect. Are you quite certain it is connected round the right way, and the amount of bias is appropriate? You should be using approximately 30 volts.

5. Give the neutralising instructions briefly, using neutralising condensers.

A.: Tune to a fairly loud station and then shut off the filament current from the radio valve. Adjust the neutralising



ing condenser until the signals almost or fully disappear. Turn on the filament current again, and the set is neutralised.

BRASS (Auckland): Is the differential One suitable for short-wave work?

A.: Yes, see a correspondent's report in last week's issue.

2. Is the coil former only large enough to fit neatly over the valve base?

A.: Yes. The former should be 1 1/2 in. in diameter.

3. Would a compression condenser of the formo type if connected in the place of the .0001 fixed condenser be an improvement?

A.: No. It is not necessary.

4. Must I use lowloss coils to get down to 30 or 40 metres?

A.: This is not at all necessary. The coils described are quite efficient.

5. Where can I procure a design of a simple transmitter?

A.: See the series of articles on "Breaking into the Amateur Game," published in the "R.R." recently. Further information may be obtained from "Handy's Handbook," which may be procured from Te Aro Book Depot, Courtenay Place, Wellington.

6. Is it possible by adding a coil of 250 to 300 turns on a 3 in. former to pick up Morse on a crystal set?—A.: Yes.

Service for Listeners

Indian Scheme

THE Radio Association of India was recently formed to relieve Indian listeners of all troubles connected with the technical side of their pastime. The association aims at recruiting a large number of trained mechanics who will be ready to attend to a member's set at any time of the day between 9 a.m. and 8.30 p.m. Members will also be entitled to the free loan of a radio set while their own is under repair.

The 1931 "Radio Guide" is out this week! 180 pages brim full of useful and interesting information. Price 2/6. All Booksellers and Dealers.

Tips and Jottings

AN extra pair of "hands" for holding small work while it is soldered can easily be improvised by slipping a strong elastic band over the handle of a pair of pliers.

THE golden rule of successful soldering is to keep the iron and work clean, and at the correct temperature.

THE numbers on a tuning dial have no direct relation to wave-length, but merely indicate the position of the moving plates in relation to the fixed plates.

teen minutes except during radio dramas. (This is by ruling of the Federal Radio Commission.)

NEVER stand a grid-bias battery on live wires, terminals, etc., but instead mount it securely by means of a strip or strap, both for economy's sake and safety.

A GOOD way of mounting a frame aerial is to employ a heavy duty jack and plug, via which the contacts can be made.

IN order to get good reproduction of the bass notes, it is important that the inductance of the low-frequency transformer primary should be high.

International Relays

Perfecting Technique

AMERICAN interest in international relay broadcasting has been one of the high-lights of world radio during the past year. In a review of the technical side of broadcasting during 1930, Mr. O. B. Hanson, manager of plant operation and engineering of the American National Broadcasting Company, recently reported that research has been carried out which enables engineers to predict with 90 per cent. accuracy thirty days before a broadcast whether international programmes may be relayed by wireless with reasonable chance of success.

These results are now possible as a result of intensive research on the effect of magnetic disturbances on short-wave transmission.

RADIO DIRECTORY

What to Buy and Where

CITIES

ACE and HAMMARLUND SETS, Johns, Ltd.

WESTINGHOUSE Rectifiers Chancery Street, Auckland.

BURGESS RADIO BATTERIES, All Radio Dealers.

LOFTIN-WHITE AMPLIFIERS Stewart Hardware Ltd., Courtenay Place, Wellington.

MAJESTIC RADIO RECEIVERS Kirkcaldie & Stains, Wellington Agents, Lambton Quay.

MULLARD VALVES All Radio Dealers.

N.Z. DISTRIBUTORS PILOT HARRINGTON'S, N.Z., Ltd., 40-42 Willis St., Wellington. 142 Queen St., Auckland.

RADIOLA RECEIVERS and Farmers' Trading Co., Ltd., Expert Radiola Service. Hobson Street, Auckland.

STEINITE RADIO G. G. Macquarrie, Ltd., 120 Willis St., Wellington.

COUNTRY TOWNS

PHILIPS VALVES AND APPARATUS All Good Radio Dealers.