practical proposition to use an a.c. valve for a shortwave battery set.

2. What alteration is necessary to use 201A valves in a two-stage r.f. B.D. receiver, now using 199 valves?

A.: Only re-neutralisation. 221 valves, but 221 valves will be better than 201A's.

NEW STARTER (Paparoa): We cannot understand why you can only get outside of New Zealand and not New Zealand stations. Surely you have made your difficulty not quite clear, and as it is we cannot give you the information you require. You should contact the dealer who sold you the set.

OMSK (Whakatane): Your easiest plan is to find the speaker voice coil leads to the output transformer and put a switch in one of these. When you use your phones, cut the speaker out by means of a switch. There is no need to worry about the field coil of a speaker. If you cut that out you will probably render your circuit inoperative. If the output transformer is at the speaker, you must break the speaker side of the transformer.

FOX (Otahuhu).—I have a 100ft. aerial 40 feet high, and have found my super-het very selective. Would I improve sensitivity if I used a longer aerial, still maintaining the same height?

A.: In all probablity, yes. Super-hets. are very selective, and a long aerial will have very little broadening effect on the tuning. However, you will probably bring in far more noise if you use a longer aerial.

2. My valves require renewing. Would it be possible to substitute some of the screen grid valves, such as the multi-mus and pentode?

A.: No. The set must be specially designed for these valves to incorporate them. Alterations would be more than slight, and would certainly not be worth while.

4. You could have a phones connection made, but it is doubtful whether it would greatly increase the range, as you would also bring up the noise level. Connection would be neither costly nor dangerous.

6. It is unlikely that altering the aerial and earth terminals would have any effect on your set. They will probably do the job you want done perfectly satisfactorily.

7. There is a slight hum in the transformer. I put this down to a loose lamination, and had the transformer repaired, but have noticed it again. Could you suggest a remedy?

A.: Quite frequently this is due to their design, and at other times to small faults in manufacture, but provided it does not interfere with your reception, it is not worth worrying about.

M. R.G. (Wellington).It is questionable whether the P. and T. Department would pass your adapter. Being of the autodyne type, and directly coupled at the aerial, it would be a very prolific source of oscillation. In fact you could almost call it a small transmitter. It would not improve the "Kestrel Three."

2. A differential condenser would be of little value; an earth connection is usually unnecessary with a shortwave adapter.

3. Yes; by constructing broadcast coils you could make it into a super het. adapter.

N. C.C. (Hanmer Springs).—Could I use the parts of my 5-valve commercial set to build the Super Six?

A.: You could use those parts which are suitable.

2. You could use your d.c. eliminator quite satisfactorily for the "S.S."

3. We regret we cannot publish details for the coils as they would certainly occasion you great difficulty in manufacture.

WAYBACK.—I have an old battery set of six valves. What is their designation from left to right?

A.: Had you told us your model we could have been more exact in our reply. However it is probable that the first three are radio frequency followed by the detector, first audio and power valve. The last one should, by the way, be a power or semi-power valve (B605 class), not A609. B605 would require to be biased by about 9 to 12 volts, depending upon your "B" voltage.

2. The set is clear in daylight, and not so at night. Why?

A.: It is due to your locality and not to your set.

E. H. (Rotowaro).—Try Johns, Ltd., Auckland, or Fear, Wellington.

CHAS. (Auckland).—I have built a choke, but this cuts the volume down about 50 per cent. Is this correct?

A.: Certainly not, but you haven't given enough particulars to let us know exactly to locate the fault. Probably your choke has too high a resistance.

2. Would a small dynamic speaker be as effective as a cone speaker?

A.: Yes; modern dynamic speakers are quite as efficient as cone speakers unless the latter are of a very light type. A dynamic speaker would give you much better quality, although if you do not have full voltage and a power valve you would not get all that the speaker is capable of delivering.

FOXY (Hokitika).—During the last week or so my set has become jumpy and noisy. I cannot turn up the volume without introducing mushiness, also the set is generally much weaker.

A.: There are many things that can be at fault. The "quality" condenser across the last transformer may have broken down; the grid resistance in any stage may have gone; one of the coupling resistances between the detector and the first audio may have broken down, or a resistance for that matter in any part of the set may be giving trouble. It is really a case of calling in a serviceman.

107 (Waipukurau).—We think the orthodox aerial would be the better. The fact that you propose taking a lead-in from a point other than the centre would materially offset any other advantages that the proposed aerial would possess.

SUPER (Taranaki).—In building the "Cathode Super," using battery valves, should I wire the 15,000 resistance in series with the oscillator lead, and connect it to the grid return, or how should it be connected?

A.: The method of coupling the oscillator employed in the "Cathode Super" can not be employed with battery valves, and will have to be placed by a feed to a pick-up coil coupled to the coil tuning the first detector. Any standard superheterodyne circuit will show the arrangement. The change, of course, to a great extent spoils the performance, as a short-wave receiver, although we believe that with a certain amount of experiment the same excellent results as are obtained with the original arrangement could be achieved with this method also.

2. Using 135 volts "B" eliminator, what value of resistance should I use?

A.: As with a battery receiver grid bias must be separately obtained from batteries, the biasing resistors leading the various cathodes to earth should be dispensed with altogether. The screen and plate resistances may remain the same, or may, if desired, be slightly reduced all round to compensate for the lower voltage available.

3. Either 200 or 250 turn coils may be used.

4. The primary turns are 40, although the addition of four turns will make not the slightest difference.

J. W.T.N. (Ward).—What is the voltage supplied to the radio frequency part of the set by the power pack?

A.: 180 volts—current about 20 to 25 milliamps depending on the particular valves employed.

2. Instead of honeycomb coils could one make a band-pass filter by winding the primaries and secondaries so that one would fit within the other?

A.: No doubt satisfactory filters could be constructed on these lines, but the particular mode of construction suggested is likely to result in the coupling being much too great. Under these circumstances the band-pass effect will almost certainly degenerate into an altogether objectionable double-hump resonance curve. Why not

(Concluded on page 23.)