QUESTIONS AND ANSWERS

A.D.C. (Auckland): The 224's in your set could be replaced by 224A's, but otherwise we do not advise you to use any other replacement types of valves than those in your set at present.

W.A.V. (Oamaru) and A.M. (Ashburton): You will both find that the "Viking Short-waver," to be described in the 1935 "Radio Guide" (published at the end of this month), would give you excellent results. Alternatively, you could build up the Lekmek A.C. Converter, described in the July, 1933, "Radio Times." Also, if you would care to wait for two months or so, a cheap but efficient single-valve a.c. converter will be described in the "Radio Times."

D.V.W. (Christchurch): I intend to build the "Comet Superhet Five," described in the November "Radio Times." Could I add a visual tuning meter, and, if so, where would I connect it?

A. Yes, a visual tuning meter could be used. The best place to connect it would be in the plate return of the 58 I.F. amplifier. In other words, break the lead between "B plus" and the primary of the second I.F. transformer and insert the tuning meter here. Also, it would be a wise precaution to connect a decoupling condenser of from .05 to .25 mfd. capacity between the "B plus" lead from the I.F. transformer in question and earth.

2. Could I use a 5Z3 rectifier in place of the two 80's specified?

A. Yes, provided that the rectifier filament winding on your power transformer will stand the extra 1 amp. drain taken by the former valve. However, as an adequate margin is usually allowed when these windings are put on, the extra current drain should not endanger the transformer.

S.S.100 (Marton): I have built the International All-wave Superhet" described in the 1934 "Radio Guide," but find that shortwave stations surge badly. I could add more audio stages, but am doubtful whether this would cure the trouble. I think that another I.F. stage would cure the trouble, theoretically, at least.

A.: But would it, even theoretically? If the surging is present in the first detector, then by adding more amplification, either audio or radio, you would only make it more noticeable. Again, you would find it would be almost impossible to stabilise three I.F. stages, with all three valves working at maximum efficiency. An appreciable amount of gain would have to be sacrificed to obtain stability, and for this reason it would be just as effective and much more economical to have only two I.F. stages working, if possible, "full out." You would find that by fitting an effective A.V.C. system, surging would be largely eliminated.

2.: Why is one side of the 2.5-volt heater winding earthed in the "Comet Five?"

A.: Because there is no centre-tap on the winding to earth. It is not strictly necessary to earth either, but in some sets doing so brings about an appreciable reduction in hum, and so the precaution is usually taken with all receivers.

3.: Would a .0003 mfd. condenser cover the broadcast band?

A.: Not from 200 to 550 metres, though it would probably tune from 225 to 525 metres.

R.H.H. (Napier): I have a six-valve battery-operated commercial portable superhet, using a 129-volt "B" battery. I find that a battery usually lasts about three months, but the last two have only given two months of service each, though the hours of operation have been shorter. What could cause this?

A.: As the bias battery is incorporated in the "B" battery it is scarcely likely that the trouble lies in the bias voltages. One of the valves may have gone a little "soft" and is drawing appreciably more current than it should. However, if the set is in constant use, it is not surprising that this battery runs down as quickly as it does. Of the valves in your set, the S22's take 3.5 mils., the HL2's 2 mils., and the PT2 8.5 mils., giving a total current drain of 22 mils. This drain is far too heavy to impose constantly upon the light portable type of battery you are using, and this explains why it is running down so quickly. After all, portable receivers are not meant for every-day use, for four or five hours a day, but only occasionally. For this reason then, your best plan would be when next buying a replacement to buy three 45 heavy duty or super-heavy duty "B" batteries. Though the outlay would be appreciably more, you would be saving in the long run, as a set of these batteries should last you at least a year with constant use, and quite probably much longer. The outlay might even be double, but you would get at least four times the service from them.

M.C. (Wellington): I have just dismantled a four-valve portable receiver that was designed in 1928. The cabinet, permanent magnet speaker, batteries and valves, etc., are in good condition, and I am considering building the "Picnic Portable," described in the December "Radio Times," and fitting it into my present cabinet. I have the following valves on hand:—LP2, HL2, S22 and a PM2DX. As the filament drain is only a minor consideration, would any of the above valves be suitable for the "Picnic Portable?"

A.: Yes, you could use the S22 screen-grid valve as r.f. amplifier. Its characteristics are as follows:—Fil. voltage 2, current 22 amps., plate voltage 150, screen voltage 75, plate and screen current 3.1 mils. You could use either the HL2 or the PM2DX as detector. Possibly the latter would suit the coil specifications a little better. Both are 2-volt valves, taking .1 amp on the filament. The LP2 is a 2-volt triode power valve, and takes .2 amps, filament current. At a plate voltage of 150, the plate drain is 11.5 mils. Bias at this plate voltage should be —4.5v. However, if you are using only a 108-volt "B" battery, —3 volts bias would be ample, and also the plate drain would be appreciably reduced, possibly to about 7 mils.

2.: The space for the set in my case is a little in excess of the dimensions for the "Picnic Portable." Could I utilise this space, and, at the same time, use ordinary tuning condensers in place of the bakelite dielectric ones specified?

A.: Yes—quite easily, if you have the room. The aluminium panels at both ends of the chassis could be left out without harmful effects.

It is possible for a set to be unstable without actually howling or whistling. It may even be oscillating without showing these symptoms, but quality will be largely spoilt.

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The fewer the turns used on the primary winding of an aerial coil, the sharper will be the selectivity. However, if the number of turns is cut down too much, sensitivity will suffer

Information Coupon

(To be used with all requests for information.)

Name of set .....

Model .....

Name .....

Address .....

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Nom-de-plume .....
To be kept in subsequent inquiries.

Please Note:—

(1) Be specific and brief, tabulating if possible.
(2) Write legibly and on one side of the paper.
(3) We do not design circuits.
(4) Limit three questions unless 1/- is enclosed.
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