

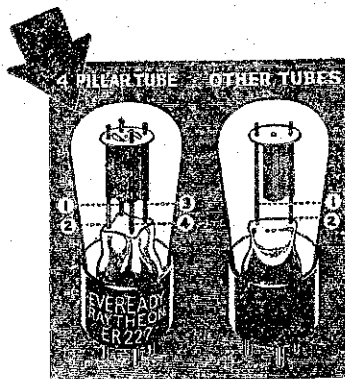
AS SURE AS

$$2 \div 2 = 4$$

ACCURACY IS VITAL IN RADIO TUBES

Your radio can't give you faithful reception with inaccurate tubes any more than a camera can take true, clear pictures when it is out of focus. You don't have to put up with fuzzy tones, harsh, metallic speech and faint, weak reception. It is possible to get tubes that never lose their accuracy . . . 4-pillar tubes.

Eveready Raytheon Tubes have four sturdy pillars that anchor their sensitive elements in place. All other tubes have only two supports . . . and their elements can be knocked out of position by the inevitable jolts of shipment and handling. And by vibration from dynamic speakers. Their accuracy once impaired, they can never give flawless tone!



WARNING! The market is flooded with old, slow-heater tubes. Eveready Raytheons are quick-heaters. Modern tubes heat up in 10 seconds or less.

Notice the four strong pillars. With this solid foundation the fragile parts cannot move a hair's breadth from their fixed position. All other tubes have only a two-pillar foundation. Two supports instead of four! Jolts, bumps and vibration often impair their vital accuracy.

Your dealer can demonstrate the superiority of 4-pillar tubes. Compare them tube for tube with others, and the difference is amazing. But to realize what an enormous improvement they can make in a radio, install a complete set of 4-pillar tubes . . . then listen!

**EVEREADY
RAYTHEON**

Standard
Telephones and Cables (Asia) Limited.

**BURGESS
RADIO
BATTERIES**

FOR Fifteen Years BURGESS—the British Radio Batteries—have been the accepted standard of radio battery dependability . . . the choice of experienced scientists and explorers.

NO MORE COUGHS—
TAKE

Pulmonals

U.S. & 2/6 At all Chemists

Questions and Answers

"VALVE" (Oamaru): Would there be any advantage in using six-volt valves, instead of four or two, in the "S.W.C. Two"?

A.: None. It is largely a question of the accumulator you happen to have on hand. Choose your valves according to this. If, however, you wish to use a low consumption type pentode such as the PT2, you will have to keep to the 2 volts series, as there is no equivalent in the higher filament voltages.

"FLAT BATTERY" (Hawera): My aerial is about 60 feet long, including the lead-in, with a 35ft. pole. Can I improve on this?

A.: Yes. The ideal aerial for your type of set is one about 100 feet long, including lead-in, swung between two 35 or 40ft. poles.

2. My eliminator has five terminals. The one marked 22.45 v. has no wire connected to it. Is this correct?

A.: Yes, if the set works all right. You could experiment with this tapping by taking the detector voltage from it. It may improve results.

3. There is no "C" battery on the set. Should I have one?

A.: Most certainly. We think you will find that you do have one, otherwise tone would be execrable. In your battery cable the green wire with the yellow tracer is B—, the black wire with red tracer C—. This is, of course, connected to A—. The amount of bias you require depends upon the type of power valve you are using. This should be a 171A or its equivalent. With 180 volts on the plate this valve requires a bias of 40 volts. You could quite easily take the bias from your eliminator, so that the plate voltage on the last valve is 135, when a bias of 27 volts would be required. To do this, use your 22.45 tapping on your eliminator as A— and ground. Connect C— power and B— to the ordinary B—. The A— battery connection also goes from the 22-volt tapping. C+ remains connected to A—.

4. Is my set suitable for dxtng?

A.: Quite. Though a little old-fashioned, you will get quite good results.

5. I think the order of my valves has been changed. Could you give me the sequence?

A.: You do not state the model of your set, and so we can only guess at it. If it is a model 22 it usually employs four 201A's or A609's in the r.f. stages. The rule usually followed in replacing valves in this type of set is to put in as many 609's as the set will take without becoming unstable. A type 609 valve is used as the detector, a 201A as first audio, and a power valve, type 171A, in the last stage.

6. Are there any more modern types of valves which could be used to improve the performance?

A.: No. We do not advise you to change from the valves mentioned.

7. Can you recommend any books which explain the elementary principles of radio?

A.: The 1932 "Radio Listener's Guide" and "Questions and Answers" in radio, both of which are obtainable at book-sellers or direct from this office, give an excellent outline of the elementary theory. Also, in the December "Radio Times," which is a beginner's number, there will be published the first of an excellent series of articles on this subject.

[Note.—If more than three questions are sent in, a shilling fee must be enclosed.—Ed.]

"PROTON" (Te Awamutu): What resistance would I need to run a four-volt valve from a six-volt battery?

A.: It depends on the valve you are using. If, for example, it takes .2 amps. filament current, Ohms law, $E = I R$, gives the necessary resistance as 10 ohms.

2. How many turns would I need on a 2 1/2 in. former to tune to 1000 metres, using .002 mfd. condenser and 30 d.c.c. wire?

A.: 42 turns.

3. What causes fringe howl?

Q.: A number of things, including insufficient shielding, both behind the panel and of the chassis; wrong value of grid leak; too high detector voltage; instability on the audio side; unsuitable detector valve, etc.

"LEGIS" (Dunedin): I have a long and short-wave commercial a.c. set. The short-wave results are good, but the only American broadcast station I can receive is KFI. My aerial is 100 feet long, including the lead-in. Would I get better results with some sort of an aerial tuner?

A.: Aerial tuners quite often do give an appreciable step-up in signal strength. Unless you are in a poor locality your set should really give better results. Are the tuning condensers correctly aligned? A broadcast aerial tuner would be of no advantage on short-wave. The second earth you mention is the better—i.e., 8 feet of wire to a pipe driven in the ground. See that the soil is kept damp.

B.D. (Rotherham): When I turn my B. D. dials back beyond 0, stations still come in. Is this harmful?

A.: No, not at all. It merely means that your dial is not correctly locked on the condenser shaft. When the variable condenser vanes are right out the dial should read 0.

2. I often receive three and four stations at once, with whistling and humming. Would a wavetrap solve the problem?

A.: No, but a more modern, and hence more selective, set than the one you are using would minimise it.

"CURIOUS" (Tamaru): I wish to store an "A" battery indefinitely. What is the necessary process?

A.: Charge it fully, empty out the electrolyte and rinse thoroughly with distilled water.

2. Could I adapt a crystal set to short-wave work?

A.: Except under very favourable conditions, crystal sets are quite unsuitable for short-wave. A carborundum crystal is considered the only satisfactory one for short-wave work.

W.H. (Kawan): I find I now have to advance the rheostat to full to get the same result as I did two years ago with it half-way round, even though the valves have been replaced.

A.: Your present accumulator is evidently worn out and needs replacing.

Information Coupon

(To be used with all requests for information.)

Name of set
Model
Name
Address

.....
.....

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.
- (5) Postal queries limit three questions. Enclose stamped envelope and 1/- fee.