



Questions and Answers



NORTENDER (Dunedin): What voltage should I wind on a transformer to supply two 240 volts from the last valve, allowing for drop in choke in the rectifying valve, and in the biasing resistance?

A.: If you wind your transformer for 300 volts, you will have ample for P825. It requires 24 volts bias at 250 volts plate, and will require a 1000 ohms biasing resistance. This evidently is the valve you require for the last stage.

2. Does automatic grid bias result in drop in plate voltage?

A.: Yes. A drop in plate voltage equal to the amount of bias supplied results when automatic bias is provided for. You must always add the amount of bias to the plate voltage.

3. Can you give a method of positively biasing an a.c. valve?

A.: There is no need to do so. A.C. valves are constructed for a negative bias, even when acting as detector. Should you require a positive bias, the easiest manner to obtain one is with a battery inserted in the grid return of the valve. The positive will be toward the grid, while the negative goes to the cathode and earth.

ACE (Kakahi): Is the number of pipes used in the Pierce earth system of any importance?

A.: Pierce, the originator of the earth system says that his reception improved as he added more pipes until he got to about a dozen, when more were not worth adding. Measurements, however, show that unless the pipes are separated by six feet or more, there is nothing to be gained by putting down large numbers.

2. Does the bottom pipe of the radiator have to be blocked to hold the water?

A.: It should not be watertight, but allow the water to leak away slowly into the ground.

3. What length should the pipe be?—Six feet.

SCREEN GRID (Trentham): Can I use a pair of phones in parallel with the speaker?—Yes.

2. Would it be possible to reduce the a.c. hum in the phones?

A.: Not without greatly interfering with your set.

3. The set works just as well without an earth. Would I get better results if I improved my earth?

A.: Probably not, many a.c. sets work better without an earth than with one.

L.B.D. (Mt. Eden): I could get only a .0002 differential condenser for the Night Hawk. What effect would this have upon the set?

A.: It would be an improvement. The .0002 is more serviceable than the smaller capacity condensers.

MAXIE (Auckland): I can get hardly any strength on by dynamic speaker, though I get quite good volume on the horn. Would a power valve improve things?

A.: If you have connected up the field supply and are quite certain that this is getting to the speaker itself, i.e., that the cords are not damaged in any way, you should have your speaker tested. The horn speaker would be more sensitive, but not greatly so. A power valve would not strengthen yourself. You can get a much better tone through its use, but strength would if anything be weakened.

KOIL (Timaru): What is the resultant capacity when a .0001 and a .00035 condenser are connected in series?—.00008 approximately.

2. How is a fixed condenser placed in parallel with a moving condenser?

A.: By connecting the one terminal of the fixed condenser to the moving plates and the other to the fixed plates.

2. What do you consider to be the better type of reaction control for short-wave, (a) differential, (b) resistance?

A.: There is very little to choose between them if the resistance is of good quality.

3. Would a .00025 or .00015 condenser be suitable for the differential short-wave adapter for tuning?

A.: The coils are designed for a .0001, or really for a .00008 moving condenser, though .00015 could be used without alteration to the coils.

J.A.E. (Wellington): I enclose a diagram of a three-coil tuner which I wish to make into an all-wave receiver. Could you supply a diagram?

A.: You cannot make a short-wave set from a broadcast three-coil tuner. Better scrap the set, saving what parts you can and make up the Differential One-valve Set.

SYD. (Otahuhu): I am unable to obtain five-prong bases for the differential series.

A.: You can use four-prong bases if you use the circuit that is given in last week's "Radio Record," and wind your coils as shown in the accompanying diagram.

JOWL (Wellington): Can phones be connected to my all-electric set?

A.: Yes, but you would need an electrician to do the job.

DANIELL (Nelson): Can I add a further stage of screen grid to my three-valve screen grid job without altering the present wiring?

A.: It is not an easy job to add a further stage to a commercial receiver. No doubt it could be done if you were very familiar with the circuit.

2. What amount of current would the Daniell cell charger deliver?

A.: About half an amp.

3. What amount of current does my set use?—A $\frac{1}{2}$ amp.

4. Can I better my valve combination?—No.

XYZ (Wanganui): Can I use 34 gauge enamelled wire instead of 36 or 38, and will the number of turns remain constant if I construct a celluloid choke?

A.: You may use 34 gauge and the same number of turns, but your choke will be much bulkier than if you use 38.

H.C. (Dannevirke): Could the Differential Four be better than my commercial kit set?

A.: We are inclined to think it would.

2. Would the Outspan Five be better than the Diff. Four?

A.: The Outspan Five is the culmination of the series of articles of the Diff. series. It is better than any of the smaller ones.

3. Could I use any parts of my set for a Diff. Four?

A.: Yes, quite a number of them.

4. What ratios are the transformers in my set?

A.: As far as we know, 3 $\frac{1}{2}$ to 1.

A.E.S. (Hastings): I am interested in shortwave work, but am quite an amateur. Could you suggest a book on shortwave receiver construction?

A.: If you are interested in short-wave you should get in touch with the Sec. of the N.Z. Shortwave Club. Suitable books on the subject are the "Radio Guide," and for those a little more advanced, Handy's Handbook.

TWO-VALVER (Christchurch): Is the enclosed circuit the combination of the detector circuit of the B.D. and the amplifier in the Crystal Valve and Amplifier, satisfactory?

A.: Yes, we have indicated the position of an essential condenser and one or two values.

2. What would be the value of the biasing resistance for the 171A's?—2000 ohms.

3. Would a 112A valve in the last stage give more volume?

A.: Yes, it might even be better for you to use a high gain power valve such as B605. This would require a biasing resistance of 2250 ohms.

RADIO (Mosgiel): Has automatic volume control any decided advantage?

A.: It is a handy refinement, but that is all.

2. Can anything easily go wrong with it?

A.: We are not in a position to say, as we have had no experience of this new feature.

3. I am told tone control is not satisfactory. Is this true?

A.: Tone control is only a method of introducing a certain amount of distortion, but you need not use it unless you like. A set although provided with a tone control, can be equally as good for real reproduction as one without it.

Note.—We cannot answer your last question as we have had no experience of the receiver in question.

C.G. (South Dunedin): I intend to build the Outspan Five. Would the tickler coil be satisfactory if placed inside the secondary at the opposite end to the primary?

A.: Yes, if about 60 turns are used.

2. Is my valve combination suitable?

A.: Yes, but bias the second last valve with 4 $\frac{1}{2}$ instead of 9.

3. I am using .0005 tuning condensers. Will 60 turns be correct for the secondary, 30 for the primaries, and 25 for the aerial coils?

A.: Approximately, yes. The primaries may possibly be reduced to 25, but try 30 to start with, and if the set is difficult to control reduce to 25.

4. Would a separate rheostat for the detector valve be an improvement?

A.: It would not be worth its inclusion in the circuit.

5. How is the third aerial terminal connected?

A.: It is connected through a .0001 fixed condenser to the plate of the s.g. valve.

6. I have two a.f. four transformers and a 5-1 of another make. How should I use them?

A.: Use the two A.F.4's.

7. Which is correct for the differential condenser, a .002 or a .0002?

A.: The .002 was a misprint; it should have read .0002.

8. I have a 10-1 ratio dial and two ordinary dials—which would be better for the detector stage?—The 10-1.

CORRESPONDENTS must attach this coupon to all queries sent to the Technical Editor (Box 1032, Wellington). Questions arriving without it are likely to go astray or be delayed.

Name of set

Number of Vales

Name

Address

Nom de plume

To be kept in subsequent inquiries.

Date

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 but accept suggestions for feature articles.

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