

# QUESTIONS: ANSWERS

FRANK KEE



**"CRONA" (Napier):** How much do 230, 231, 232 consume in milliamperes from "B" batteries?

A.: 230 (90v.) 1.8 mas, 231 (135v.) 6.8 mas, 232 (150v.) 1.4 mas.

2. What would be the output of two 231's in push-pull?

A.: 45 watts.

3. How do the new 230 series valves compare with the more popular six-volt ones?

A.: They are equal in all respects.

**SHORTY (P.N.):** Your circuit is quite satisfactory. A four-valve circuit was described in the "R.R." some time ago under the heading of "The Differential Four." Yours, however, is almost identical, and should work quite well. Why not try the "Sparrow Hawk Three," with an extra valve on the audio side, connected as you have shown in your sketch?

**HOPEFUL (Patuanui):** A crackling noise is experienced while my combination set is on the radio. It is worked at night.

A.: Take off your aerial and see if it persists. If the noise is still there, it is outside interference over which you have little control. If it disappears, the trouble is in the r.f. stages, and if you do not know anything about radio, it will be rather difficult to eliminate. Go over your aerial and earth connections, and see that they are quite sound, and look around to see if you can locate a loose wire.

**W. A. LAND (Rangiahua):** I have a five-valve set which I use 38 to 40 hours weekly. The batteries last 4½ months only. I am biasing the last valve, B405, with 9 volts.

A.: You are using a battery set a large number of hours weekly, with the result that your batteries will not last long, but the grid bias on the last valve should be raised to 12½ volts, as this would slightly lower the drain and make the batteries last longer.

**DYNAMO (Waitomo Caves):** I have added pushpull to my Outspan Five, but have not obtained better results. Two grid-leaks are used across the secondary of the transformer, and a special output transformer. If I use more than 4½ volts grid bias, the volume drops.

A.: Pushpull will not give you greater volume. It will only allow the set to give you greater volume without distortion. Try a special input transformer, as you

should be able to bring the grid bias voltage up considerably more than 4½ volts.

2. We do not know anything about the set to which you refer.

3. We cannot help you unless you give us a diagram showing the exact way in which the connections are made. Are you quite certain you are not placing a choke where it should not be, and so preventing any reception taking place?

**N. B. PORT (Dunedin):** My house is surrounded by trees, and I have topped them on one side. Would it be an improvement to top them on the other, so that the aerial would not be overshadowed?

A.: Theoretically yes. Did you notice an improvement when the first lot was topped? If so, it will be safe to assume that better results will be obtained if the second lot is topped.

**NOVICE (Christchurch):** Your set is evidently still wired wrongly. Take it to a dealer and ask him to fix it up for you. It is almost impossible for us to direct you further by correspondence.

2. Is it possible to charge an accumulator from a generator, such as is used to drive a push bicycle lamp? I intend to attach it to a waterwheel near a stream.

A.: We doubt if enough power could be developed to satisfactorily charge the accumulator. The generator would probably supply no more than about a quarter amp., and your battery would have to be on the charge continuously.

3. What is the method of connection?

A.: Connect the generator to your waterwheel, take the two wires from the generator to your battery. You will have to determine which is positive and which is negative. This is most easily done with a voltmeter placed across the two wires. If the needle shows a forward reading the positive of the meter is in contact with the positive lead from the generator. If the needle does not show a reading, or tends to kick back, reverse.

**SCREEN-GRID (Dunedin):** Oscillator A409, first det. A415, second det. A409, power B405, screen-grid valve A442.

2. Can an outside aerial be used to advantage?

A.: It is not permitted. A loop must be employed, and you will find it quite sensitive enough on the loop.

3. The oscillator coil has three positions. Why?

A.: Low wave, medium and long wave, the last being of very little use in New Zealand.

**J. R. B. (Dunedin):** Where interference is bad would it be better to use lead-covered wire than ordinary wire?

A.: Yes; use either lead or shielded wire and round the shielding.

2. Must the aerial be covered as well?—No; keep a very short top and get the mast up 30, 40, or even 50 feet. We shall prepare an article on interference for the "Radio Times."

**C. E. R. (Raetihi):** What type of valve is most suitable for the "Sparrow Hawk One"?—A415 class.

2. An r.f. choke of 100 turns, 30 gauge d.c.c. wire, would be suitable for the "Sparrow Hawk," though it would be better if you could use finer wire, say 36 enamelled.

3. The circuit of the "Sparrow Hawk" is designed principally for short-wave work, though it is admirable on broadcast.

**TULLY (Dunedin):** You are making a big mistake by using B605 in the first radio. Use either 221 or A609. B605 is a power valve, and beside having very little amplification, places a very big drain on your battery. The set is not worth taking down and rebuilding, as very few of the parts would be of use.

**F. H. (Gisborne):** The s.g. and detector stages do not need filament resistance if the valves are used with the correct battery.

2. Flexible biasing resistors would be quite satisfactory. Note that the bias resistance of a screen grid valve is 400 ohms and not 4000 ohms. The bias resistance is halved for two valves in push-pull, not doubled.

## A Dixer's Map of Europe

A DXERS' map of Europe is now obtainable from the offices of the "Radio Record." The map, which is printed on linen, folds up into a small compass (about the size of the "Radio Guide") and is fitted like a book between two stout paper covers. The map shows the location of all the broadcasting stations in Europe, and is splendidly compiled. It is issued by the B.B.C.

Only a limited number of these are available, and may be had for 4/- (post free).

Supplies of "World Radio Identification Panels" have been exhausted, but we are writing for more, and orders will be filled in rotation on their arrival. Price 2/-.

Address correspondence to "Radio Record," P.O. Box 1032, Wellington.

**REGULAR READER (Christchurch):** First locate the offending stage by taking the r.f. valve from the circuit before turning on. If this does not have any effect, turn off the set and take out the detector valve and turn it on, and so on. When the growing stops you will know that the trouble is in that stage and you can then systematically search for any fault. However, it is most likely that the trouble is in the detector stage, as it is rather difficult to get oscillation without a growl with certain types of a.c. sets. Try reversing the connections to the tickler coil. If the set will not then oscillate reverse and take off a few turns. Try a different detector valve and a different value grid leak and grid condenser. We are hoping to have the a.c. version of the "Outspan Five" in the "Radio Guide."

**JACKSO (Otahuhu):** You do not state what voltage you are using on your valves and consequently we cannot tell you the power current.

2. The total filament consumption is 38 amps.

3. The set develops a very harsh tone when the volume is turned on. The speaker is quite satisfactory.

A.: It may be due to the bias on the last valve having dropped or the valve itself having become exhausted. It may be the B voltage has dropped on one or all the valves.

**A. K. L. O. (Awanui N.):** To use two ordinary transformers in push-pull is the speaker connected to the primary or to the secondary, or must they be reversed to obtain a 3-1 step-up transformer?

A.: The transformers are used in the normal manner. If you wish to obtain a step-up transformer you cannot use the ordinary transformer, for by reversing you will pass the "B" current through the very fine windings of the secondary.

2. Why does my five-valve set howl when stations are on the air?

A.: It is unbalanced. Re-neutralise it.

**5-VALVE (Napier):** Where could I obtain a five-valve triode circuit?

A.: The five-valve B.D. published in DX38NW (Westport): Have you read our articles on aerials, in the "R.R." of December 31. The best aerial for d-xing is the Beverage aerial, which was fully described in the 1931 "Radio Guide." The double-wired aerial is used only for short spans. The lead-in should be as short as possible, and slope back from the aerial wire. Your sketches are rather hard to decipher. We think you have the idea of a good aerial quite all right. Remember that a long aerial, unless it is of the Beverage type, militates against selectivity.

**CONDENSER (Westland):** Theoretically your arguments are quite correct, but we think it was not called for in the examination. In practice what we have given serves the purpose admirably—we know from experience.

**W. G. N. (Hastings):** The "Sparrow Hawk" differential adaptor is quite suitable for the four-valve B.D.

**DX1810C (Otago):** Write to the local agents for your set. They may have some recommendations with regard to shortwave converters.

2. We do not know. We cannot tell you unless we see either the set or its circuit.

## Information Coupon

(To be used with all requests for information.)

Name of set .....

Number of valves .....

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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