

# Questions and Answers



**J.B.L. (N. Auckland):** How can I arrive at the correct values of coupling condensers and grid leaks in an r.c.c. audio amplifier?

**A.:** The usual coupling condenser is anywhere between .001 and .5 mfd. The plate resistance .1 meg. and the grid .5 meg.

Is it practicable to have r.c.c. coupling in an r.f. amplifier receiving it by a band pass tuner?—Yes.

3. Have you the frequency response for a 66R Blue Spot unit?

**A.:** Unfortunately, no. The impedance at 2000 cycles is roughly 16,000 ohms.

4. Have you the frequency response of an Emmeo Puratone transformer?—No.

**MARSITE (Te Aroha):** Is the enclosed circuit of an r.f. oscillator suitable for testing and matching coils?

**A.:** This would do for aligning condensers or neutralising sets. Phones would not be required; you merely short-circuit the points where they are shown. When this apparatus is connected to the mains it will oscillate. Tune this squeal in on a broadcast set at about 1000 kilocycles, by placing the link formed by winding a few turns over the coil and continuing it to form another coil, over the r.f. stage. In turn starting with the coil nearest the detector, move each condenser until the loudest signal comes in. Continue this until all the stages have been done, then lock the condensers in that position. For new coils take out one stage r.f. coils and substitute the new coil. Tune in on the oscillator and add or subtract more turns until the reading on the condenser dial is the same as for the others.

**Z.L.D.X. (Palmerston North):** How many turns are required on a valve base to cover the short-wave band, tuning condenser .00005?

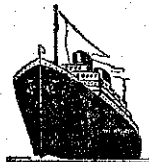
**A.:** This was given only a week or so ago in Q. and A. If you are using differential reaction allow two extra turns on the regeneration coil.

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2. When the diameter of the former is given and the gauge of wire specified how is the number of turns on the former calculated?

**A.:** It can be arrived at by charts published in the "Radio Guide" or by Nagao's formula.

3. What is an R valve?

**A.:** A bright-emitter valve not now used.

4. Is there any advantage to be gained by placing a crystal in the grid leak?

**A.:** No. It would act as a high resistance and cause damping.

5. Can you publish a description of the condenser speaker?

16. Is a three-valve super. het. better than an ordinary three-valve set?

**A.:** The sup. het. needs more valves than three.

17. Can an r.f. transformer be constructed for an untuned stage by building the primary to have the same resistance as the impedance of the valve?—Yes.

18. What is an i.f. stage?

**A.:** That portion of a sup. het. receiver which comes between the first and the secondary detector. See "Radio Guide, 1931."

**NORTHERN PATROL (Dunedin):**—I have two variable condensers each with 28 plates. Are they suitable for the

**A.:** The sliding bar coil would be the better. The best type of crystal would be the semi-permanent type.

**PEP PUNCH (Christchurch)** I intend using 2PM4's for the "Night Hawk." Will they be satisfactory if used with wet batteries?—Yes, quite.

2. Using these valves on dry batteries, approximately how long should the batteries last?

**A.:** The "B" batteries about 7 months and the "A" batteries about 3.

3. Would the transformers I mention be suitable for this set, and was it the same as the one used in the laboratory model?—Yes.

**RANGIOTU (Mangawhatu):** How can I improve my earth system consisting of four pipes 3ft. apart three of which are driven down to water level?

**A.:** Place the radiator near the centre of the group and drive the fourth one down to the water level. The pipes would, according to theory, be better if they are 6ft. apart.

2. Are the leads to the terminals taken separately or joined together?

**A.:** They can be taken separately or joined by the terminal.

3. My poles are 42 and 45 feet high. Is it to the detriment of the system to have the nearby pole higher than the more distant one?

**A.:** No, the effective height of your aerial is the average.

**E.D. (Hastings):** Are the details of my set correct?—Yes.

2. Could I increase the selectivity?

**A.:** Four-valve sets of the type you specify are unselective. To improve the selectivity use a wavetrap, or add another stage of r.f. The grid bias on the

**OWING** to the increasingly large number of queries that our Technical Department is called upon to answer, we have found it necessary to make some slight alterations in our system. Commencing with our next issue, each correspondent will be restricted to three questions. Those who wish to have more questions answered, or who desire a reply through the post, must enclose stamps or postal note to the value of 1/-. We regret that this has been necessary, but to a large extent it has been brought upon by some correspondents "overstepping the mark." Letters containing from 12 to 20 queries are not uncommon, and many of these could have been answered had the correspondent looked up either back numbers of the "Radio Record" or the "Radio Guide."

Here are some interesting facts concerning the numbers of queries we have handled during the last six months: There have been approximately 1,500 letters, representing 5,000 to 10,000 questions. This entails a great deal of work, but where we are helping a correspondent genuinely in difficulty we are pleased to be able to do it.

**A.:** It was published in the "R.R." of July 18 and August 1, 1930.

6. What are the causes of overlapping oscillation?

**A.:** Excessive H.T., too loose a coupling, too great a number of turns on the tickler.

7. The power of Radio Saigon is secured by the current, three phases four threads, 120 volts, etc. What are the four threads?

**A.:** The term "thread" is certainly uncommon. It is probably a free translation of the French word "fil," meaning "wire." Hence a four-wire system—three phase, one neutral.

8. The circuit sketch with this question is worth trying by reversing the grids, using the control grid for the shield grid and vice versa. Voltage will be critical on the control grid. The circuit No. 9 is not allowed in New Zealand.

9. In winding an aperiodic transformer on a 1in. diameter former one turn of No. 36 Eureka wire represents 1 metre. How many turns would be equivalent to a metre on a valve base former?—A.: 1.3-8.

10. How many plates has a Pilot .000032 mfd. condenser?—Ask your dealer.

11. Will one stage of push-pull give more volume than two stages of straight-out audio?

**A.:** Not as much, but it will handle a greater amount of current without distortion.

12. Is it possible to test the emission of a valve without specially-built apparatus?

**A.:** Yes; by connecting a m. ammeter in series with the plate lead, and leaving the grid free.

13. Of what is the following circuit?

**A.:** Of a Reinartz transmitter.

14. The circuit referred to is a Schnei.

15. Will you supply the theoretical circuit of the Rotorua portable?

**A.:** It is the ordinary Browning Drake.

transmitter recently published in the "R.R."?—Yes.

2. Will half-inch copper tubing be suitable for that circuit?

**A.:** It will be a bit unwieldy if you are using lower power, but will be ideal for high power.

**B.R.H. (Auckland):**—Will coils of 1in. gauge wire spaced be satisfactory for short-wave coils? I see now that most coils are wound with thin wire unspaced.

**A.:** Your coils will be quite satisfactory. The coils nowadays are designed for ease of construction, and are not always fully efficient. The valves are so remarkably efficient that a little can be wasted in the coils.

2. My "B" battery comprises 50 volts, with a tapping for the detector at 30. Should the voltage on the plate of the audio valve be 50 or 20?—50.

**GLAD. (Palmerston North):**—I wish to rebuild my set. Can you tell me a really good 5-valve all-wave circuit?

**A.:** An all-wave circuit of 5 valves would be very unwieldy. For a broadcast set try the Outspan five. For an all-wave set the Differential Four published last week.

**J.H.S. (Wellington):** How would two pentode valves go with push-pull?

**A.:** Pentodes valves could be used in push-pull, but there is really no need to do so. They may be difficult to handle, and they would need to be carefully matched to the output transformer.

**SIGMA (Wellington):** Can an ordinary sliding brass coil be used instead of a honeycomb coil for my crystal set, and would a carborundum crystal detector be better than the one specified?

**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. Limit three questions.

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.

Solving trouble, as different from advice, is difficult by correspondence and while letters are given every consideration, answers are not necessarily correct—they are only our opinion based on the matter supplied, which may be quite inadequate. Intricate and involved specifications cannot be supplied without a specialist's fee.