

Questions and Answers



Exponential Horn.

"COULD you tell me where I could obtain particulars of an exponential horn speaker?" asks F.H. (Huntly).
A.: It was fully described in an early issue of the "Radio Record."

Plug Coils.

"HOW many turns are required on a 6-pin coil to tune between ten and twenty-five metres?" asks R.J. (Wellington).

A.: Secondary 3, tickler 4, primary 3. Wound with 18-gauge enamelled wire and tuned with a .0001 variable condenser. The tickler coil and the secondary are made distinct, and it is preferable to wind the tickler with 24-gauge wire. The primary and aerial and secondary are continuous. The connections are as follows: Pin No. 1 (top end of the secondary with the moving plates of the tuning condenser, the grid leak and the grid condenser. Pin No. 2 (secondary primary common) joins with the moving plates of the tuning condenser, the moving plates of the reaction condenser and A plus. The fourth pin, the bottom of the combined and secondary winding, connects directly into the aerial. The end of the tickler coil No. 5 goes through the plate to the detector valve, and the high-frequency choke. The other side of the tickler (6) connects with the fixed plates of the reaction condenser. In order to reduce the capacity of .0005 tuning condenser to .0001 a condenser of .0005 mfd. value must be placed in series with it.

Coils Not Matched.

"I HAVE constructed the 3-valve Brown-ing Drake," writes J.M.D. (Mar-ton) and an using .00035 and .0005 condensers. I get 2YA at 57 on the radio condenser, and on the other condenser this station comes in most strongly with the vanes full in. I have tried reducing the number of turns on the secondary coils, but this makes very little difference."

A.: Quite obviously the coils are not matched. Consult a table giving the specifications for different condensers and wires, such as that published in "All about the all-electric" on page 64.

Crystal and Amplifier.

"WOULD you clear up the following points in connection with the tetrode crystal and amplifier, described in the Radio Record: (1) How many turns are required on a basket coil when an aerial 200ft. long is used?

A.: If tuned with a .0005 condenser 30 turns of 24 silk-covered wire. If the tuning is not satisfactory reduce the effective length of the aerial by placing a series condenser .00025 in the aerial. However, a plain solenoid has proved equally efficient in this circuit. Such a coil would consist of about 50 turns double cotton covered wire on a 2 1/2 in. former and tuned with a .0005 condenser. The aerial tapping will then come in to the top of the coil, the earth to the bottom and the condenser shunted directly across it.

(2) I do not wish to use two jacks. Kindly show the wiring for one only.

A.: Disregard the wire going to the phone jack from the ground terminal and from the wire coming from that joining the crystal to "P" of the transformer. No other changes are required.

(3) Where would a switch be placed

to cut off the batteries, or can they be turned out by the rheostat?

A.: A switch is not necessary, but a rheostat with a neutral position should be employed.

(4) I have a variable condenser with 7 moving and 6 fixed plates. Could this be used, and, if so, what is its capacity?
A.: The capacity is about .0001, so that a coil with a very large inductance must be used. This will require about 150 turns on a 2 1/2 in. former.

Condenser Problems.

"I HAVE a .00035 variable condenser and wish to remove some of the plates to reduce its capacity to .00005. How many plates shall I remove?" asks "Radio Pro" (Napier).

A.: It would be difficult to say with any degree of exactness how many plates you would require. Probably two fixed and one moving would be as near as possible.

2. In the screen grid short-wave receiver described in the Listeners' Guide, the tuning condensers are rated as .00015 mfd. Is this correct to correspond with the number of coils on the turns?—Yes.

3. What is the value of the third variable condenser, and in it the reaction control?

A.: It is the reaction control and its capacity is about .00025.

4. Should the grid condenser have a value of .0015 or .00015?

A.: .0001.

5. What diameter former should be used for the radio frequency choke, and is this jumble wound or in a single layer?

A.: A plain solenoid choke of about 150 turns will be all that is required.

R.F. Booster.

"SOME time ago," writes A.G.W. (Lyall Bay) "I constructed the screen grid R.F. booster, and have had considerable success. Without altering my set I wish to further improve it. Can I add another booster?"

A.: It is very unlikely that you would secure good results without entirely remodelling your set and perfectly screening it. Even then three stages of radio frequency and two of these screen grid are liable to give trouble.

A.C. Surge.

"I HAVE a crystal set which works perfectly during the day time, but at night exhibits the rather peculiar phenomenon of becoming insensitive if our lighting system is interfered with. The wiring has been inspected and is O.K.—R.Y. (Porirua)."

A.: When the contact is made in the switch a surge is set up which alters the potential of your crystal, causing the two parts in contact to become insensitive. The only cure is to obtain another crystal.

Underground Antenna.

"EARTHQUAKE (Seddonville) asks for the specifications for an underground antenna."

A.: These are not satisfactory, as is set out in an article in another portion of this issue, but if you wish constructional details see an issue of the "Radio Record" dated December 7, 1929.

2. Would aluminium paint be suitable to protect my aerial wire.—Yes.

3. What lubricant would you advise me to put on the valve prongs to prevent

their tendency to stick in their sockets—vaseline?

A.: Probably a little Zam-buk well rubbed in—No, lubricants are insulators.

4. What is your opinion of Baid De Luxe shortwave adapters?

A.: We cannot pass opinion on commercially-made receivers.

5. What shortwave adapter would you advise me to get and fix to my 6-valve receiver?

A.: Either a good one you could make up from specifications given in the "Listeners' Guide" or one made by a good firm who specialise in shortwaves, say Mack's Radio, Wellington.

A Puzzling Statement.

THE following statements published in a dealer's catalogue have puzzled me very much, writes Amateur (Nelson):—

1. "The valves used with dry 'A' batteries have a shorter life than those used with an accumulator." (2) "Accumulator valves should last about 18 months or more, and dry cell valves rather more than half as long."

A.: It appears that the reference is to the low filament consumption valves used in dry batteries and the higher consumption valves used with accumulators. The former do not have to pass as much current as the latter. Consequently they have a thinner filament which cannot stand the same overloading. As it is almost impossible without the use of a rheostat or other resistance to get the exact voltage for dry cell valves when using dry cells there is a tendency to burn them at a temperature too high and ruin them.

A License Question.

CAN I take my radio set to another district for the holidays with my present license?—D.L.C. (Frankton Junction).

A.: Yes, but notify the Auckland district radio inspector that you are doing so.

2. Will shortwave adapter described in the "Radio Listeners' Guide" work with a 7-valve all-electric set?

A.: Yes, quite.

3. What is a resonator?

A.: It is a trade product handled by L. B. Scott, Ltd., Christchurch, consisting probably of a condenser to alter the effective capacity of the aerial, but communicate with this firm for further particulars.

Useful Hints

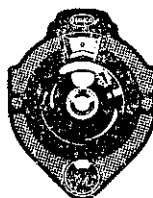
ONE of the disadvantages of using coupling resistances of high value, such as 1 megohm or so, is that small external circuit capacities then begin to exercise a bypassing effect upon the higher musical frequencies, and so destroy the brilliancy of the music.

THE minimum capacity of a good variable condenser is about one-tenth (or less) of its maximum capacity.

KEEP the aerial lead well clear of walls or buildings, with no metal of any kind within a yard of it.

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