

An Experienced Constructor

Made Three "Moving Coils"

From a 30-ohm rheostat, which may be mounted flat on the baseboard alongside the power valve. The resistance of the potentiometer should not be less than 60 ohms, but no harm will result if it is considerably higher, say up to 80 ohms. All that is necessary is to cut the connection between the arm and one end of the resistance. The arm is then connected to earth or "B" negative by means of a wire soldered to its connection. Each end of the resistance is then to be connected to its respective filament lead by a resistance wire of not less than 15 ohms. Nine inches of No. 36 s.w.g. nichrome resistance wire on each side would be right. This should be wound on each end of a strip of mica or other insulating material, about 1 1/4 in. long, cut as shown, notched at the edges with a pocket-knife, the wire wound on and passed through holes, and the strip bolted to one of the rheostat terminals as shown in the diagram. One end of each nichrome wire connects to one end of the rheostat resistance, and the other end to one filament lead of the power valve by means of a copper wire soldered to the end of the nichrome.

Radio Frequency Chokes.

THE inclusion of a radio-frequency choke in each secondary lead to the rectifier is well worth while, as selectivity of the receiver is maintained owing to the chokes keeping back any unwanted R.F. signals picked up by the mains acting as aerials. These chokes are easily made by winding 1000 turns of enamelled wire gauge equal to that used on the secondary coils of the transformer, upon a flat spool of thin fibre, ebonite, or 1-8 in. cardboard, and about 2 in. in "meter. If 36's wire is used, the slot need be only 1-8 in. wide, but if 32's is used the slot must be 1/4 in. wide. The centre of the spools are cut 1/4 in. a narrow-cored wire bobbin, secured with seccotine, and may be bolted through the centre or secured under baseboard with a screw. The sides of the spools may be square, octagonal or round.

A Few Don'ts.

DON'T mount the transformer and chokes direct upon a tin-covered baseboard, or the tin floor will vibrate and cause hum. Just to place the tin under the board, with a space for the wiring between tin and board.

Don't cut stalloo strips until coils are wound and complete. Correct sizes are thus ensured.

Don't forget to switch off the power supply before touching connections of an eliminator, and always switch on after the filament battery, and switch off before the filaments are cut out.

Don't build a container until all the components and condensers have been assembled. The required space only may then be provided.

Don't omit to shellac double cotton-covered filament windings, and don't cover them until dry.

Don't forget that all wires carrying alternating current should be shielded from those carrying the output voltages, and from the voltage divider and resistances.

Don't omit to bind the outside laminations of a transformer with adhesive tape—where there are no clamps.

Have you secured your copy of "N.Z. Radio Listener's Guide?"

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I AM always interested in the constructional articles in the "Radio Record," and always look forward every Friday for it, writes Mr. Schofield (Hamilton). My son and I have done a great deal of constructional work in radio as a hobby, and find a great deal of pleasure in it. We have built up several sets, and like all good radio enthusiasts, we are never satisfied. We are using at present a 5-valve B-D, and get very good results. We have also a shortwave set, with screen grid, H.F. det., and one audio. This we plug into 3-valve audio of B-D. last stage is push-pull, giving in all 6 valve on shortwave. The big American shortwave stations come in loud enough to be heard all over the house, in fact KGO, S.W. station, on the Wednesday evenings can be heard over 200 yards away.

Our eliminator was made from "Megohm's" instructions, using B.H. tube, and has been a great success, we never having touched it since it was made. We have also made three moving coil speakers, and they also are a great success. The first one was a junior, by way of experiment, with a 1 in. core, and about 2 1/2 lb. of 20ft. enamel wire, and high resistance coil of 1000 turns. The results were fairly good, but she took over 1 amp. and did not like too much volume.

The next we made had a 2 in. core, and 7 lb. 20ft. wire, with 5 in. cast iron pot. This speaker, we thought, was perfect, till we made another one. This last one is similar, only we made the pot and core of steel, and the pot larger, to take 10 lb. of 20ft. enamel wire, and we also connected to this speaker a dry rectifier, and made a small stepdown transformer. We are putting through this magnet coil 15 volts. The moving coil has 1000 ohms. The enamel we used for this was taken from a Ford spark coil, and looks about 40 odd.

The moving coil was made on a collapsible former, and every 200 turns during winding we gave a coat of amilacitate of celluloid. After leaving to dry for a day the former was taken away, leaving a strong self-supporting lightweight coil. The cone is about 3 in. in diameter, and diaphragm about 1/4 in. wide, made of packanette, or, in other words, rubberised linen. The gap for moving coil is 3-32 in. The speaker is about the last word in reproduction, and still we are not satisfied.

I was greatly interested in your article in the April 12 issue, referring to matching impedances for dynamic cones. We would like to build a new audio amplifier, the best possible, to be worthy of this speaker. What do you say to Ferranti 5 transformer in first audio, followed with Ferranti push-pull, and using 2-250 valves in P.P. with 450 volts on plate, or would you recommend using 2-210 valves? The impedance of the 250 is only 1800, while that of 210 is 5000, and this, of course, in push-pull would be doubled.

A.: Use two 210's, two 250's would cause complications.

Do you recommend the matching of impedance with high resistance, or step down transformer?

Short-Wave Notes

Duplex Telephony Tests

ON May 8, at 8.45 p.m., a strong carrier was heard on approximately 52 metres, sending a tuning note, afterwards in slow Morse the call sign of station. On waiting a little while, the announcement was made as follows: "Hullo, ladies and gentlemen, this is WJC (or 3XL) testing." I left the set a little while, but on returning 3XL was off the air. It is an experimental station, and is located at Boundbrook, New Jersey, N.Y. His strength on the 8th was R7 to S.

Amateurs heard on Friday, May 3, were 2EO and 2AY, carrying out duplex telephony test on 80-metre band, both stations coming in well; in fact the little test was well carried out, and I would like to hear some more of it next Wednesday. 2EO stated that K2ME and Java would be "jealous," or words to that effect. 2AX, Palmerston North: Wonderful strength, but modulation a little harsh at times. 2BE, Hastings: Strength R9, clear and steady—a transmitter to be proud of. It is surprising the strength some of these hams come in with at times, and makes one think they are using 30,000 watts instead of 30 or so. So carry on the good work, hams.

Saturday, May 4: PC8, Holland, was heard on their afternoon programme, coming through at great strength. The latter part of same was special for Sydney radio show, which was in full swing on Saturday.

The test with 2ME and W8XK I heard on May 8. Both sides of the conversation came through quite well, 2ME fading a little; this fade was also noticeable with W8XK, so he stated. W8XK mentioned in his conversation that CJRX had been relaying 5SW, Chelmsford, and also that 5SW was heard quite well in Pittsburgh, some days being weaker than others.

Duplex telephony has been heard on Saturday afternoons and Sunday mornings between Germany and South America, the German on 26 metres and the American on 31 metres. By the nature of the conversation heard, it seems a wireless duplex telephony service has opened up between these two countries, because many times different people at both ends have been heard to converse on private matters, and after such conversations Germany was heard to give the time taken for the call to America. To quote on time given, Germany stated that it was four minutes 20 seconds, but I heard nothing in reference to the charge to be made for each call (probably 25). I am sure the German was DHC, Nauen, the shortwave station who carried out a

A.: Use the latter (200 turns on M.C.).

What a.c. valve would you recommend for first audio.—(UX226).

What valve will be best to use in making new eliminator to rectify the 450 volts?—(Use 2 x 281's.)

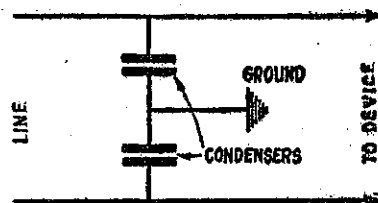
great many tests with VK2ME a little time back.

Our friend London calling has been heard a great many times lately on word tests, but so far I have not been lucky enough to get his correct call-sign; in fact, he never gives anything else but "London calling," or "This is London."

A Useful Filter.

GETTING away from the shortwaves, this may be of interest to experimenters in wireless circles: An Eastern radio concern has designed an interference filter for preventing noises from the power line from interfering with the operations of electric receivers or power supply devices. This filter may also be used to prevent radiation and interference from electric sewing machines and all similar electric appliances.

Two types are available, on which can be used with a maximum voltage of 220 volts A.C., or 400 volts D.C.; and the other designed for operation with 125 volts A.C. or 20 volts D.C. This filter consists of two 2m.f.d. in series with mid-point, grounded as shown, the interference filter and circuit diagram of connections are:—



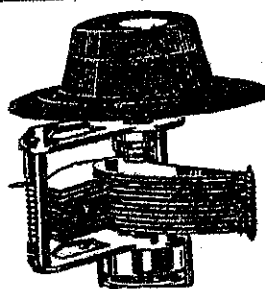
I should like anyone who is trying out this as a filter to write me and tell me their results.

Threshold Howl

THE following are a list of suggestions to cure the above trouble:

1. Reduce filament voltage of detector valve.
2. Change value of detector grid leak.
3. Connect grid leak of 1 or 2 megohms across secondary of transformer.
4. Change transformer. In general, a cheap make will be less likely to cause threshold howl than an expensive one.
5. Use filter output circuit for 'phones.
6. Connect condenser of .0005 or .001 across 'phones.
7. Connect H.F. chokes in each 'phone lead.
8. Use capacity coupling for aerial circuit instead of loose inductive coupling. It may be necessary to try more than one of the above "cures" to stop the howl.

FOR long-distance reception on a crystal it is essential to erect a low-resistance aerial of good length, and it must be higher than surrounding objects.



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