



UNIFORM AMPLIFICATION *without distortion*

An essential feature of an audio transformer is uniform amplification without distortion of all frequencies between 100 and 8000 cycles. The above characteristic curve for the STANDARD AUDIO TRANSFORMER shows the amplification to be practically constant between 100 and 3000 cycles, and that the variation is negligible from 3000 to 8000 cycles.

The use of the specially-patented core has resulted in a transformer that meets every requirement, at the same time being of mid-gig size without sacrificing performance and dependability. It is 7½ ounces in weight, and the dimensions are 2 ins. x 1½ ins. x 1 3/8 ins. It is definitely equal to any old type bulky units used hitherto.

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Questions and Answers

GIPSY MOTH (Mount Eden): Would I notice a great increase in volume if I were to increase the plate voltage from 90 to 135?

A.: We think, yes.

2. With 22½ volt. det. and a 5 meg. grid leak there is a gentle step into oscillation on the two shortwave coils and on the others (the broadcast coils) under the same conditions, the oscillation is rather rough.

A.: Your best plan would be to incorporate potentiometer grid return. You could then alter the setting to include reaction on all coils. The valve of the grid condenser for broadcast work should be about .0003.

3. I have lead two wires of 22 d.c.c. for a distance of about 40 feet from my speaker. Is this imposing a strain on the set?

A.: No, but it would be advisable to use an output transformer, to restrict the d.c. current to the set and not allow it to wander through the wires. A diagram shows how to connect such a filter.

TIMOTHY (New Plymouth): What size condenser do you wish to tune the secondary with? We cannot give you coil details without this.

N. E.P. (Nelson): Assuming that the same signal voltage were fed into both systems, and that the valves were working at their fullest capacity what would give the greatest undistorted volume—two pentodes in pushpull or two 250's in pushpull?

A.: The undistorted output of two 247's in pushpull would be approximately 7.5 watts. That of two 250's approximately 14 watts.

C. M. (Lower Hutt): I cannot get a pick-up up to function by connecting it to the grid circuit of my detector valve. How is rectification accomplished in my eight-valve set?

A.: If the customary condenser and grid-leak are missing, power detection is employed, and the best way to insert a pickup is to break the grid return between the bottom of the coil and grid bias and put your pickup there. The condenser and resistance are used for neutralisation reasons. The specifications for a filament transformer to supply six 227's, one 415, and one 603 are core 1½ in x 1½ in. Primary 1140 turns of 24 gauge enamelled wire. Secondary, three separate windings of No. 18 gauge d.c.c. Each winding should have 15 turns. These can be used in parallel to supply the six 227's. The 415 is a d.c. valve and quite unsuitable for a.c. operations. For the 603 you will require one winding of 18 gauge d.c.c. wire with 35 turns. For further particulars see the "Radio Guide."

W. H.W. (Dunedin): I have made a short-wave adapter, and am using same from a "B" and "C" eliminator. There is a bad hum.

A.: This is due to the sensitive short-wave detector picking up hum through the plate supply from the eliminator. Your best plan is to incorporate another choke and condense in the "B" lead. A commercial one of the B3 type would do, and use a 2mfd. condenser between the set end of the choke and earth.

BILL (Rangiahua): I have difficulty in separating the stations on my five-valve set.

A.: Your best plan would be to construct a band-pass filter, an extra tuning unit such as was described in the 1932 "Radio Guide." The estimated cost would be about 30/-.

J. B.G. (Lower Hutt): What is the ratio of the two audio transformers in the shortwave receiver described in the 1932 "Radio Guide"?—3½—1.

2. Would Osrain four-volt valves be suitable in the first and second stages?—Yes.

R. C. (Nelson): It would not be practicable to add a radio stage to a short-wave receiver, such as "Round the World Two." If you want to use a three-valve set, with a radio stage, construct the "Kestrel Three," the screen-grid r.f. amplifier. This was described in the "Radio Record" about five months ago. You could use your own coils in this set.

TRYOUT (Sumner): Is it possible to construct the coils used in the i.f. stages of the "Cathode Super"?

A.: Yes, providing they are of the hand-pass type, any intermediate coils resonating at 175 kilocycles will be satisfactory. We have made arrangements for "Cathode" to describe, some time in the future, suitable coils for this set. Bank wound coils would not be much inferior to the honeycomb ones described. However, your best plan would be to look out for the article. It will appear probably in the "Radio Times."

SUPER SIX (Reefton): I have constructed the "Super Six," but there is far too much noise. All the components have been completely tested. The stations are tuned in with a shrill whistle which does not leave on some of the stations even when properly tuned in.

A.: Such a condition as whistling on some stations is often caused by the fact that the receiver is sufficiently sensitive to respond to two signals on approximately the same frequency being transmitted by two widely-separated stations.

IYA's Frequency Changed

MANY listeners will have noticed that IYA now comes in at a different place on the dial. The fact is that it has reverted to its original frequency of 902 kc., from which it temporarily shifted to 875 kc. in order to avoid heterodyning with American stations.

There is no real remedy as far as the receiver is concerned. Other causes may be an open ground at the shield and shield contact, poor contact in the mixer and i.f. and demodulator circuits, incorrect location of the control grid lead in the first detector and i.f. stages, and parasitic oscillation generated by the oscillator valve. If the noise you complain of is a constant crackling, try removing the loop. If it continues, then there is either a loose connection or a defective component in your set. But you must bear in mind that the "Super Six" is really a sensitive set, and if there is any noise due to power leakages, etc., there is a very good chance of picking it up.

D. U. (Paeroa): I am on a hill surrounded by trees. How can I best erect my aerial?

A.: Without a sketch of your locality it would seem to us that the best plan would be to run the aerial from one of the higher trees to a mast on your house. The lead-in could be taken from a point several feet away from the house end. However, end the aerial at this point, and merely support it to the mast by ordinary wire well insulated from the aerial wire.

TRURO (Auckland): Is it possible to add a short-wave to my Cossor Melody Maker?

A.: Yes, special short-wave coils are provided for this receiver.

2. Could I improve my earth, the wire of which is 15 feet long, and is tapped to a water-pipe which runs under the house for a further 26 feet before it enters the ground, which is very rocky?

A.: Is it not possible to take the wire direct from your set to a galvanised pipe or series of galvanised pipes driven into the ground and kept moist with salt water?

TALKIE (Manunui): What would be the correct output transformer for two dynamic speakers, wired in parallel, to be matched to two 250 valves in pushpull?

A.: It would be a better plan to wire two speakers in series. However, for parallel operation the ratio should be approximately 27—1. If the two speakers are wired in series the ratio should be 20—1.

2. A Blue Spot speaker is wired in parallel with a dynamic. This also alters the impedance. Would it be better if it were taken off the stage earlier?

A.: Yes; but surely if you are using two 250's in pushpull it is unnecessary at a

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