

"DENTACOIL" (Dunedin): A four-valve B.D. built from the 1929 "Guide" does not have any kick.

A.: This we cannot explain, as the information is too meagre. It has given excellent results generally.

2. What Mullard valves shall I use in each stage?

A.: In this order: PM5X, 6D, 5X, 6.

3. "Guide" says UX199's. What is the Mullard equivalent?

A.: PM5X is an up-to-date version of the UX199.

4. What is meant by "g.p." in a valve?

A.: We don't quite know what is meant without the context. It may have been a misprint for grid bias or may mean grid to plate capacity, possibly general purpose.

5. I have two .0005 capacity variable condensers. If used with 56 turns are they as good as .00035 with 86 turns?—Yes.

6. I have only three tappings on the eliminator, while the set calls for four. Can I use the maximum on both first and second audio?—Yes.

7. Are the primary and the tickler windings both of 30 gauge?—Yes.

8. I have 18 turns on the tickler and 16 on the primary. Will this suit the valve recommended?

A.: Yes, but you might have to reduce the number on the primary to 14.

9. How would I know whether to add or take off windings by the performance of this set?

A.: If it oscillates too readily there are too many turns on the tickler. Conversely, if it does not oscillate there are too few. The performance of the set in relation to the primary can be gauged only by experiment.

10. With the valves that I tried, r.f. rheostat and detector rheostat, were about half on and the audio has to be full on. If this is normal, why have an audio rheostat?

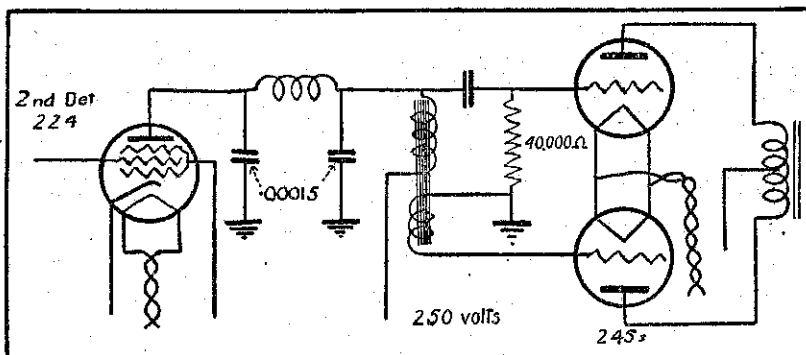
A.: It is quite normal for some valves. The audio rheostat in your case is not necessary.

11. What resistance should the three rheostats be?

A.: 30 ohms.

A. S. (Khandallah): I have recently constructed a nine-valve a.c. broadcast super het. and have encountered trouble. The intermediate frequency amplifiers absolutely refuse to amplify. The set works beautifully with the i.f. transformers out. The first and second i.f. stages if connected to the oscillator and detector by the secondaries each show a definite peak. How would it be connected to a Loftin-White?

A.: We do not know at present of any successful method of coupling the



super het. to the Loftin-White amplifier as it is extremely difficult to obtain a constant impedance throughout the audio frequency range for the 224 in the second detector plate circuit. The selectivity of the i.f. amplifier is in itself sufficient to somewhat suppress the higher audio frequencies in the range of 2000 to 4000 cycles; therefore we suggest that you use a method of coupling the second detector plate circuit as shown in the diagram. This method will be very popular this year. The second det. plate circuit is isolated by a choke and two .00015 mfd. condensers. The second det. is impedance coupled by what would appear to be a new method

to the new 245 push-pull valves. Owing to the difficulty in obtaining a constant impedance throughout the audio frequency range of the 224 second det. plate circuit the impedance is in effect made constant by a 40,000 ohms resistance across one section of the coupling choke. Owing to the suppression of the higher audio frequency due to the selectivity of the i.f. amplifier these frequencies must be reinforced in the a.f. amplifier. This is accomplished by the small resonating circuit comprising a small condenser shunting a coil, as seen, in series with the 40,000 ohms resistance, equalising resistances across the 245 grid circuit.

This resonating circuit is proportioned so that it will boost the higher audio frequencies which are somewhat suppressed by the i.f. amplifier to exactly the extent to which they were suppressed.

NOTE.—A question such as this is really outside the scope of Questions and Answers.

J. B. (Murchison): From your description either of two things appears to be wrong: (1) You have connected the battery up in the reverse way. (2) The battery terminal markings are wrong. This is a mistake that sometimes happens.

C. T. (Wellington): I have a five-valve neutrodyne set and am troubled with hum. I wish to try out a short-wave adapter, but the hum is too strong on headphones.

A.: The usual procedure to make such an eliminator humless is to use a 25 to 50-henry choke in the detector lead and use a two mfd. by-pass condenser from the set side of this to B—. Full particulars about smoothing an eliminator for short-wave will be found in the 1931 "Guide."

P. W. D. (Auckland): Could you make more clear the coil specifications for the Outspan Five?

A.: Yes. Aerial coil, primary 25 turns 32 d.s.c., secondary 75 turns 26 d.s.c. First r.f., primary 30 turns 32 d.s.c.; secondary 80 turns 26 gauge. Regenerator, primary 30 turns 32 gauge d.s.c.; secondary 75 turns 26 gauge d.s.c. Tickler, 30 turns of 32 d.s.c. These are for a .00035 or a .0003 condenser.

2. Would 32 aluminium cans 4in. high be large enough for the coil screens?—Yes.

3. In the body of the article 26 gauge is given for the secondary coil, in the list of components it is given as 24. Would either do?

The list of components should have read 26, but 24 gauge will do quite well.

4. Could the grid-leak be taken across to A+ instead of across to the grid condenser as shown?—Yes.

5. Would this set be suitable for connecting to a pick-up, and, if so, where do you recommend it should be connected?

A.: It will be quite suitable for a pick-up, but if best results are required a push-pull amplifier should be included. Before very long we shall bring out a set with a push-pull amplifier, and you could incorporate this in the Outspan Five. The pick-up should be connected

between the grid of the detector valve and A—.

7. What means of volume control do you advise?

A.: For local station work use the second aerial terminal. Volume on all other stations but the local can quite easily be controlled by dimming the filaments of the r.f. valve. When using the auxiliary of the aerial terminal turn out the filament of the r.f. by the rheostat provided.

8. The photographs are badly reproduced in my copy. Would it be possible to get a better one?

A.: Our printers were not at all kind to us last week in the way that they brought up the blocks of the Outspan Five. We shall look out the best one we can and send it along to you.

9. I take it that all the earths shown are connected to the shield.

A.: Yes, A— can be connected to the shield or the wiring carried out as is shown in the wiring photograph. The earth's points are shown more to keep the diagram simple than to indicate actual connections to the shield.

W. L. F. (Invercargill): Could I fit a tone control to my set?

A.: Yes, you need a 500,000 ohm resistance and a .002 mfd condenser. These are connected in series between the grid and filament return of the last valve. The tone can be controlled by varying the resistance.

2. Do I have to change both coils in a screen-grid set for short-wave?—Yes.

3. Is resistance capacity coupling as efficient as transformer coupling?

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