

The Shielded-5 Neutrodyne

A Little Ambiguity

A RATHER unfortunate error occurred with the drawing of the shielded-5 neutrodyne published in our issue, Vol. 2, No. 35. The error occurred in the wiring of the audio stages in the lay-out diagram. It was shown that the "B" + 90 was connected to the "B" + 135, and these to B of the last audio transformer. The mistake was that the connection between "B" + 135 and "B" + 90 was incorrect, as a reference to the theoretical diagram would show. "B" + 135 is connected directly to speaker positive and to that only.

MORE than one correspondent has been puzzled over this, and the following is a typical inquiry from "Kelburn," Wellington:—

1. In the theoretical diagram the terminals shown for "B" + 135 and + speaker are not made through any connection on the set. To what are they connected?

ANSWER: They are connected to one another.

2. In the lay-out diagram the lines meeting tend to make it a little ambiguous in one place. For example, see the connection from "B" + 90 to "B" of the last audio transformer. The connection for "B" + 135 seems to join on to this. Should this be so?

ANSWER: No. See above.

3. "B" + 135 is shown as being connected with the speaker terminals, but is there no other connection for "B" + 135?

ANSWER: No. "B" plus 135 goes to the speaker only.

4. I intend using 6-volt valves. What should the value of the rheostats attached to the filaments of the two radio frequency valves be?

ANSWER: Actually, 6 ohms will be sufficient, as it is sometimes necessary to dim the filament of the radio frequency valves slightly, but it would be wise to use a 20 ohm rheostat so that if, at any time in the future, 5-volt valves are used, the rheostat would be sufficient to burn the filament at the correct temperature.

5. If 6-volt valves are used with a 6-volt accumulator, what would be the value of the R2 resistance?

ANSWER: A resistance is not necessary under these circumstances.

6. Would it be better to install coils wound on ebonite formers or celluloid formers? What make of coils would you recommend?

ANSWER: There are several very fine lines of coils on the market at the present time that would be suitable for this set. Some are wound on ebonite and some on celluloid, both of which are equally efficient. For example, Airzone are on celluloid and Radiokes are on ebonite.

"INCIDENTALLY," the above correspondent writes, "I would like to express my appreciation of the wonderful value of the "Radio Record," and the useful hints given to the amateur who wants to know a bit more about radio than just turning a few dials. I keenly look forward to the issue each Tuesday, and I keep a scrapbook which is invaluable to me containing cuttings (indexed) of all the matter in the "Record" worth keeping for reference purposes, and incidentally, the book has reached goodly proportions."

When a Set Refuses to Function

IF your newly-built set, when put on test, shows signs of activity but refuses to pass signals, it may be assumed that the amplifying section is O.K., but that something has gone amiss with the detector or H.F. section.

The plate circuit can be tested by withdrawing and reinserting one of the H.F. plugs. This should cause a click. A similar click should occur when the loudspeaker leads are connected.

If it is possible to hear a gentle rushing noise, it can be assumed also that the filament circuit is in order, and if the valves are of a type that functions with a glow, it will be possible to see if this is so.

When no signals—not even Morse signals—can be heard, it may be concluded that the aerial, though connected, is not in circuit with the rectifier. This is a very common trouble, and is generally traceable to a badly fitting grid leg. If examination and a slight spraying out of the grid leg fails to provide a remedy, the coil connections should be checked and, as in the case of the valve pins, the plug should be opened or sprayed. Contact of the most perfect order is essential everywhere, but more particularly in that portion of the set over and through which the very weak aerial oscillations are conducted.

A Simple Test

VERY few receivers employing one RF valve followed by a detector with reaction function perfectly. It is the reaction control that indicates in the first place whether the RF valve is completely neutralised. Here is a simple test to try. See first of all whether the receiver oscillates with the tickler coil, or condenser in the case of throttle control, at zero. If on the lower wavelengths the receiver oscillates and is out of control, then the first valve is not balanced.

Now tune to a distant station and see if by moving the reaction dial the valve goes in and out of oscillation at exactly the same reaction dial readings. If there is any lag and the dial has to be thrown further back than the point at where it went into oscillation, the first thing to look for is a non-neutralised RF valve. Now it often happens that the neutralising condenser is of too low a value, and this can be soon rectified by adding a little parallel capacity. More often than not it is interaction between the two main tuning coils that is the source of the trouble. Remedies for this complaint are obvious. Separate the coils, adjust their angles with respect to each other or, better still, screen one or both. Usually, to screen one only will be found sufficient, and if this method is reverted to always screen the coil upon which reaction is applied.

It not infrequently happens that a receiver employing some form of reaction suddenly refuses to oscillate, with a consequent loss of sensitivity. One or two of the most common causes of the trouble may interest some who have experienced this complaint. First of all check over the detector plate voltage. The battery may have run down, as the B negative to B + det. cells in the battery have more current drain than the remainder. Try the effect of giving a higher voltage on the detector. Another point to watch is that the grid leak is connected via the coil in many cases to the filament positive wiring. A higher resistance grid leak makes the valve oscillate more readily. Try 3 to 7 megohms instead of the usual value of 2 megohms. By very slightly de-neutralising the RF valve sometimes gives better control of reaction, although this is not always advised. A faulty grid condenser will cause the detector valve to become "off-colour." The only remedy here is to replace with a new and tested one. A fixed condenser of .0005 to .002 mfd. capacity between terminal P on first audio transformer and B—will prevent choking due to the amount of wire on the primary of transformer.

A detector valve that has lost its emission becomes dead, and a replacement of a faulty valve is obvious.

A valve of low impedance usually oscillates smoother than a valve of higher impedance. A few more turns on the tickler may improve.

RADIO LISTENERS' GUIDE.

1929-30 Edition will be on Sale
Shortly---Features for all---Con-
struction, Servicing, Reference and
General Radio Sections.

Order Your Copy Now !

(Available from dealers and booksellers at 2/6 or 2/9
Post Free from the publishers.)

(Postal Coupon for Country Readers.)

"N.Z. Radio Listeners' Guide, 1929-30."

"RADIO RECORD,

P.O. Box 1032, WELLINGTON.

Please post me immediately on publication
copy [ies] of your 160-page illustrated reference work "The
N.Z. Radio Listeners' Guide, 1929-30," at 2/9 per copy post
free. I enclose herewith postal notes for.....
(Add exchange to cheques).

Signed.....

(Write address clearly)

A NEW YEAR RESOLUTION--- "Make My Will"

Do not let 1929 get any
older without making your
Will.

Decide for YOURSELF how
your property shall be dis-
tributed—do not leave such
an important personal mat-
ter to the rigid laws of
descent.

It is a privilege—as well as
a duty—to make a will.

FIRST OF ALL

read the interesting and in-
formative booklet, "Your
Estate," obtainable from
from any office or agent of
the Public Trustee, or free
by post from the Public
Trustee, Wellington.