

horizontal centre, then place the front on the bench and drill it.

Two large (1-8 or 3-16-inch) holes are to be drilled in the back to allow the aerial and the screen battery cable to enter. These will be very low, about 1/4 in. from the bottom of the screen. Half-way along the other side and half-way up another such hole is drilled.

In mounting the components, small holes will have to be drilled in the base to allow the components to be bolted to the screen.

like "Glazite," which is already covered. Square busbar is difficult to work. Solder all connections.

Connecting up the batteries is not a difficult task, and the voltages are shown in the theoretical diagram. If a power valve is used in the last stage, it is advisable to incorporate an output filter choke. This consists of a low frequency choke between the speaker terminals and a one or a half microfarad condenser between a speaker terminal and the speaker itself. This unit can be housed in the set if there

connected between aerial and the screen.

In carrying connections through the screen slip a short length of insulated steering or insulated tape over the existing wiring.

Tandem condensers are out of date, though they function well in this circuit. Separate dials may, of course, be used if the layout is followed. All three condensers may be gauged if a balancing condenser (shown) is used. It is hoped to publish the A.C. version of the circuit shortly.

## Answers to Correspondents

"H. J.C. (Wellington) wishes to construct "Round-the-World" Two but asks further information on several points.

1: Would a five-plate neutralising condenser be all right in the aerial lead?—Yes.

2: Instead of the 'phone jack, could I use jack with four contacts and do away with the battery switch by connecting the top prong to A and B—, the second to the secondary of the transformer, the third to P of the sound valve socket, and the last to B+?

A.: Yes, the second connection goes to the secondary of the transformer and then to the negative connections of the valve. If grid bias is required, the connections shown in the 3-valve set described in the following week's issue must be used, it is shown as Jack No. 2 in the accompanying diagram.

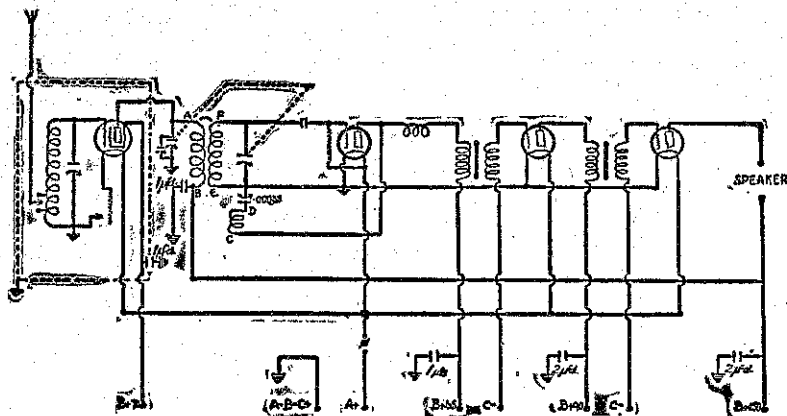
3: I intend to use Radiotron 20 as detector, and Philips A609 as audio. Will these be all right?

A.: Yes, but if you are purchasing new valves, use the new Radiotron 221, as it is very similar to 201A, but requires less filament current.

4: Will an amperite be necessary for the audio valve if I use a 6-volt accumulator?—No.

Plate resistance, 10,000, 9000, 850 ohms.

Amplification factor, 9.  
The performance of the valve as detector and amplified was good. It can be used in the last stage of a 2-valve amplifier properly biased with quite good results. Its place, however, is as first or second audio in a larger set, or a radio amplifier. It is a sensitive detector, and oscillates freely. The figures quoted above show that although it requires only a low filament consumption the plate current is quite low.



### General Notes.

Little is to be gained by giving a point to point wiring description. This diagram shows the connection clearly, joined wires being indicated by a square mark and under baseboard wiring by a dotted line. Use tinned wire

is room. A one to one transformer can also be employed with a horn, cone or inductor dynamic speaker. A moving coil requires a step down, usually 25 to 1. Because the screen grid valve is utilised the set will not need neutralising, and if the specifications are followed, it will oscillate easily.

All the BX leads are shown bypassed with condensers. They are preferable when expense will permit. The connections on the B.P. filter are marked A, B, C, D, E, and F. This was the only way which they worked satisfactorily in the original.

In the wiring layout a fuse has been placed in the screen lead. This is done for a good reason, as our contributor burnt out a screen grid valve through trying to do without. Especially if the wire to the plate of the S.G. valve is long, one is very necessary.

A volume control consisting of a 0/500,000 ohm potentiometer should be

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### Components for "Band Pass Four"

Variable Condenser, .0005.  
2 Ganged or Tandem Condensers, .0005.

1 Variable Condenser, .00035.  
(See Table 1 for permissible variations).

Fixed Condenser .00025.  
Grid Leak, 3 megohms.  
By-pass Condenser—

Two 2 mfd. One 1 mfd.  
One "R.R." standard screening  
box 9 x 4 1/2 x 6.  
Two Audio Transformers (low  
ratio).

One foot of 2-in Tubing.  
1 lb. 28 s.w.g. d.s.c. wire.  
1 lb. 30 s.w.g. d.s.c. wire.  
Four Valve Sockets.  
Jack and Switch (or combine the  
two into a filament break jack  
depicted).  
Ten Terminals.  
R.F. Choke.  
Rheostat, 30 ohms.

The R.F. Choke may be purchased or made, according to directions previously published in the "Radio Record."

### Laboratory Jottings

R.C.A. 221

AMALGAMATED Wireless (Aust.), Ltd., have introduced a new valve on to the New Zealand market, and a sample has found its way into our laboratory. The arrival of this valve is timely, as it has been designed to meet the requirements of the dry cell "A" battery type of receiver. Following are the technical features of the valve:

Filament current, .06, at 6 volt, .056 at 5 volts.

Plate voltage, 150 max.

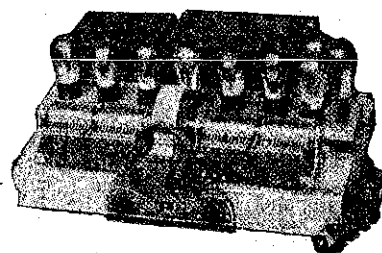
Filament voltage, 5.5-6.

Plate voltage .. 45 90 135 180

Grid bias ..... 4.5 9 10.5

Plate cur, mas. 1.5 2 2.5 3

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