

# e Three

for the diagrams are self explanatory. Examining the theoretical diagram it can be seen that the circuit is virtually the same as that in the Loftin-Three, the only difference lying in the derivation of "B" or high voltage current. The current is drawn through the tap marked "B" from the high voltage source—that is, the set side of the smoothing choke. The untapped choke is provided then to remove any elements of hum which might affect the quietness of the tone. If such is the case, and an increase in the capacity of the smoothing

system will not materially reduce the ripple it will be necessary to incorporate a further smoothing choke. It is unlikely, however, that this will be necessary. The properly designed tapped choke is, of course, the proper expedient in a circuit of this nature.

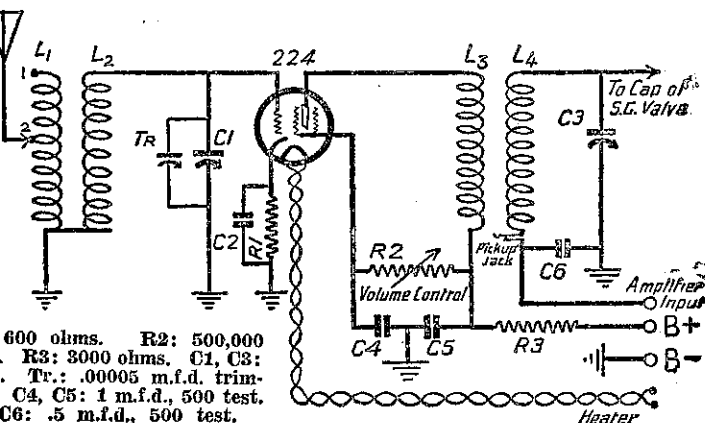
The value of R3 is 3000 ohms or so, and it must pass at least four milliamps. If the current is drawn from the centre tap of the last stage valve this resistance can be omitted, its value being of little importance so long as it is about 3000. If a fixed resistance is to be used with current drawn directly from the power pack its resistance should be 100,000 ohms.

R2, which controls the screen voltage of the r.f. valve, is placed on the panel and acts as an excellent volume control. The valve must be fairly high because the current flow through it will be very small indeed, and it will be found that 500,000 ohms. is sufficient. The biasing resistance must pass the four or five m. amps. taken by the valve and raise the potential cathode some 3 volts above the grid which is at absolute negative potential. For this a fixed resistance of 600 ohms. should suffice. The coils and the condensers are the same as for the complete Loftin-Three, and were given in last week's issue. The fixed condensers C2 and C6 are .5 mfd. condensers, while C4 and C5 are 1 mfd. They should have a working voltage of 180 volts.

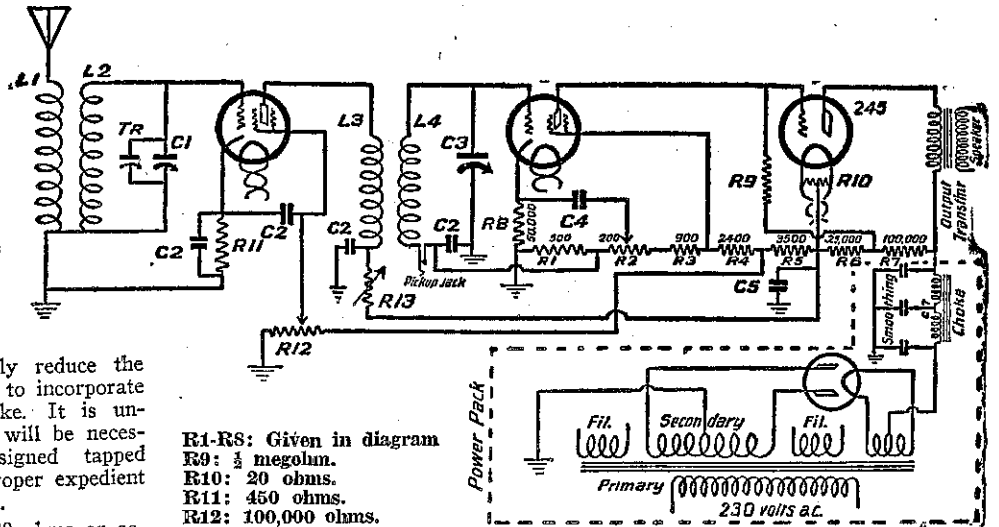
## The Layout Diagram

SO much for the theoretical considerations. Let us look for a moment at the layout diagram and the sketch of the completed set. There is an aluminium sub-panel 7in. x 8½in. and this is turned down 2in. The size of the sub-panel must, however, somewhat accord with that of the amplifier, especially as regards the turned down portion and the depth. The shield cans are the size adopted as standard for the Loftin-Three.

etch Plan of the separate stages to follow the amplifier pictured in the top hand corner. This amplifier must be reversed when adjoining the tuner.



600 ohms. R2: 500,000  
R3: 3000 ohms. C1, C3:  
Tr.: .00005 m.f.d. trim.  
C4, C5: 1 m.f.d., 500 test.  
C6: .5 m.f.d., 500 test.



R1-R8: Given in diagram

R9: ½ megohm.

R10: 20 ohms.

R11: 450 ohms.

R12: 100,000 ohms.

R13: 2000 ohms.

C1, C3: .0005 m.f.d. variable condensers.

Tr.: Trimmer, 00005 plates.

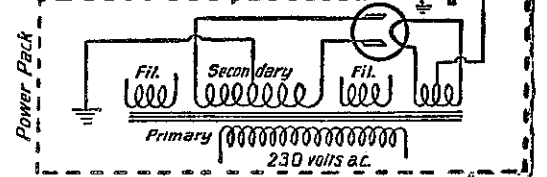
C2: .5 m.f.d. 500 test condensers.

C4: 1 m.f.d., 180 working test.

C5: 1 m.f.d., 500 working test.

Coils as last week.

The two condensers are ganged as shown in the sketch diagram, and between them is a shield, but this is not necessary under ordinary circumstances, and should be



used only if the system is unstable. The diagrams have not been drawn to scale, but the components are well separated in order to show all the connections as clearly as possible. All but the r.f. grid wires are under the shield along with the condensers and the two fixed resistances. The dotted wiring is shown thus only to simplify matters, and does not indicate any special feature of the plan. The arrangement of the circuit is in-  
(Concluded on page 29.)

that's an idea!  
YES



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