

12"



THIS week we are intending to combine two weeks' articles and give readers in concise form the details of the adapted Loftin-Three and of the tuner that can be used in conjunction with the existing outfit without any alterations to the latter, except a slight change in the wiring of the input circuit.

We recommend this week's description of the Loftin-Three because the screen and r.f. plate current is drawn from taps in the main resistance chain, thus eliminating the high resistance in the tuner. Furthermore, the altered resistances make for slightly louder signals than those used in previous articles. Another point about this version of the receiver is that the pick-up jack is inserted in the grid return of the detector valve. We have explored both systems and believe that this alteration is not only more simple but it gives better results than when the jack is inserted in the cathode of the detector.

Before proceeding any further, let us make the point clear that apart from the bias and detector plate circuit the resistances of the amplifier are not extremely

critical. Their purpose is closely allied to that of the ordinary voltage divider and need not be correct to a few ohms. As far as possible we have simplified out the resistances and presented them in round figures and a slight deviation from these will not be of any account. When a high potential is delivered from the power pack a greater resistance must be placed in the voltage divider. Probably the most satisfactory arrangement is to have resistances R3 and R4 continuous, say, 2500 or 3000 ohms, and a variable tap leading off to the screen for the voltage on this is more or less critical. So are the bias resistances of the detector R8 and R1. So long as R4 and R5 jointly amount to about 6000 ohms the point where the tap leaves to the r.f. valve is not particularly critical. It can likewise be varied to suit individual purposes.

The values R6 and R7 are not of great importance. Their function is merely to divide the potential between the main source of high voltage current and the current after it has passed through the valve. The values of the resistances must be reasonably high so as to allow a minimum of current to pass. The tap is arranged so

Constructional details of the Loftin - White

that it will lead off 50 volts or so to R9, so that it will cancel out part of the high voltage in that chain to provide a working bias voltage for the 245.

The resistances of the main chain R's. 1-5 must be capable of passing the total current passed by the valve—30 milliamperes. The other resistances have to pass only a m. amp. or so with the exception of R11 and R13, which pass 4 or 5.

There is now little that remains for the constructor to do but make the set. The layout was shown last week and the alteration in the resistances need make but little difference to this. If constructors have difficulty, a further picture diagram will be published, but it is felt that it is unnecessary. Follow the above panel layout published here, and the resistances underneath will fall into place without any trouble.

The coils have already been described. There is no alteration for this version of the set. It should be pointed out that the numbers of turns on the primaries are fairly high to make possible the greatest transfer of energy. But this has certain disadvantages when it comes to considering the question of stability, and if any trouble is experienced in this direction the constructor will know that he must remove some of the wire from the primary.

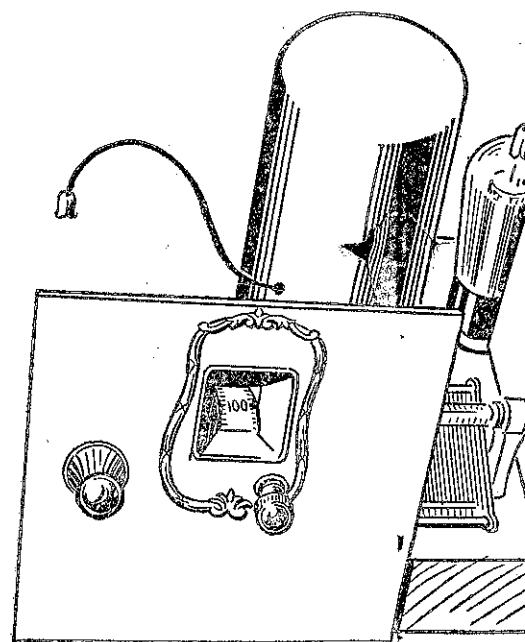
It is probably hardly necessary to remark that the pick-up jack must be such that when the jack is removed the springs will short-circuit and complete the grid circuit of the detector. An alternate arrangement is to connect the pick-up permanently and wire a switch across the jack. When this is closed the receiver is in the position to receive wireless signals, and when it is open the pick-up is in position, thus providing

a grammo-radio switch, which is in accordance with the most modern design.

When the Amplifier is Not to be Rebuilt

THE above description has been slightly modified to allow constructors who already have a Loftin-White amplifier to add a radio stage without rebuilding or going to unnecessary expense in the provision of further resistances. The system needs little explanation for the

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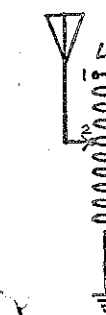
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Sketch
Radio
Amplifier
left-hand
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R1: 600
ohms. R3
.0005. T
mer. C4
C2, C6: