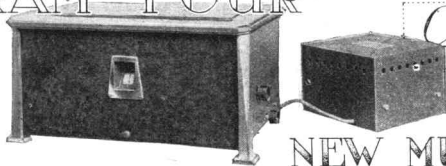


OSRAM FOUR

Kit
Constructors
Notes

NEW MUSIC MAGNET

New and Improved Receiver: also Provision for A.C. Mains Operation
of Last Season's Model.

FOR the past three years it has been our pleasant task each autumn to describe and review an Osram "Music Magnet" kit of parts for home assembly. This season we have in some respects rather less to talk about with regard to the new battery model, because it is unaltered so far as its fundamental circuit is concerned; but an important step has been made in bringing out an A.C. mains version of this deservedly popular receiver. Of almost equal importance is the introduction of a "conversion kit," whereby last year's battery-fed set may be converted for mains operation.

Basically, both battery- and mains-fed models embody a 2H.F.-det.-L.F. circuit, with transformer-coupled H.F. stages, grid detection, and a triode output valve, also coupled by a transformer. Reaction is controlled by a differential condenser, and a variable condenser in series with the aerial acts as an input volume control. The tuning of all three circuits is fully "ganged," and the indicating scale is directly calibrated in wavelengths.

So far, this description applies equally to last year's model. Electrical alterations made this season include the provision of gramophone pick-up terminals, and the fitting of a new type of volume-control condenser, with

a low minimum capacity and a plate-shape devised to give a more nearly linear change of volume.

Several constructional modifications have been made, and the new cabinet, in well-finished real walnut, is definitely more pleasing, and also easier to assemble, than its predecessor. There is also a better escutcheon plate, with a transparent window having an engraved hair-line indicator.

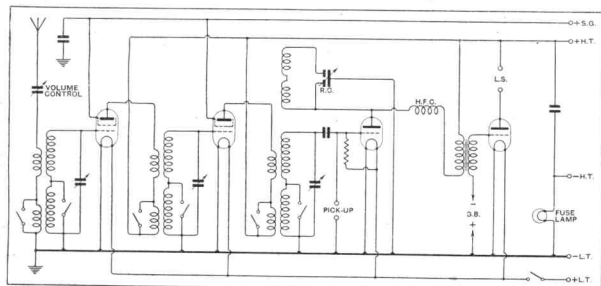
Turning to the A.C. receiver, the circuit arrangement, though basically identical, is modified at several points to allow the use of indirectly heated valves. Bias resistances are inserted in each cathode lead, and there is a choke-filter feed for the loud speaker.

At this point it should be made clear that the A.C. "kit" differs from its "battery" counterpart only in so far as it includes additional apparatus, such as bias resistances, with their by-pass condensers and suitable mountings, and a completed power supply unit. This extra apparatus is, as already mentioned, available as a "conversion kit" for the benefit of those who have built the 1930 "Music Magnet."

Reverting to the complete new receivers, it is noticed that all the attractive constructional features that have already been commented upon favourably in this journal

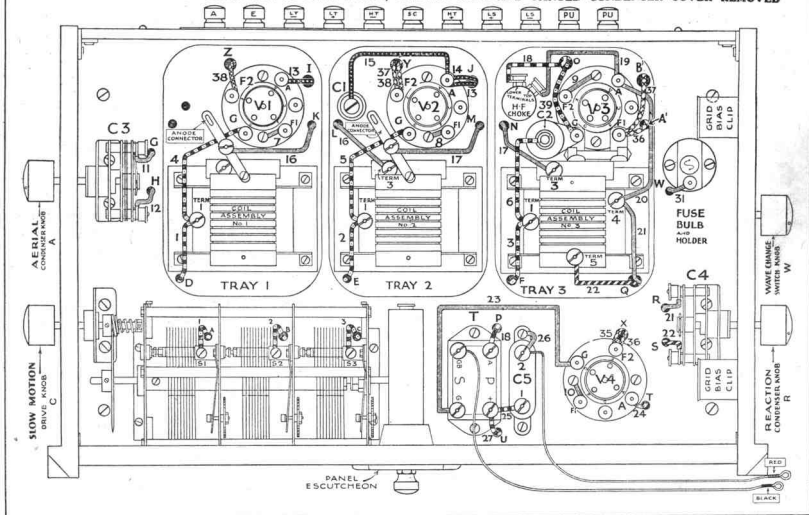
are retained. Provided that the instructions are followed implicitly—and it is unwise to take what may appear to be short cuts—it is certain that anyone who can use his fingers at all should be able to assemble the set in a couple of evenings. Everything is made as easy as it could possibly be, and it seems that any mistake could only be due to rank carelessness.

Although it was originally intended that this article, as well as being a description of the new sets, should also contain helpful hints for those who



Circuit diagram of the battery model. Valves used are Osram S.215, H.210, and L.P.2.
Anode current consumption varies between 14 and 18 milliamperes.

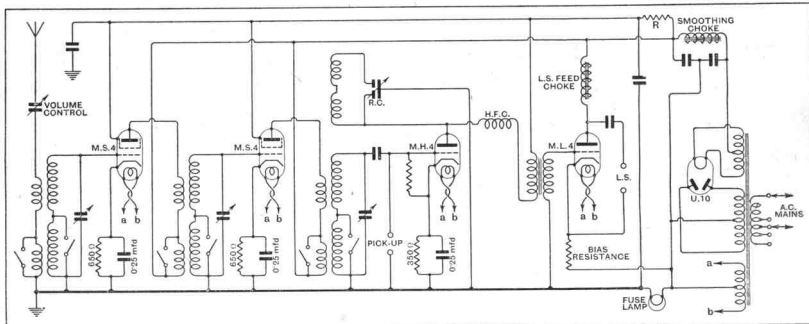
SHOWING ALL WIRING ON UPPER SIDE OF BASE PLATE; SCREENS CANS AND GANGED CONDENSER COVER REMOVED



A reproduction, one-third full size, of the practical wiring plan, showing the upper side of the base-plate. Connecting leads are distinctively marked, so they can easily be traced to the under-side.

may decide to build them, it seems almost impossible to supplement the makers' instructional sheet, which is singularly free of the deficiencies so often encountered. The operation of adjusting the condenser trimmers, for

example, is clearly explained; as a rule, the simple method advocated will be entirely satisfactory, but should a millimeter be available, it is as well to check visually the settings determined aurally, as a more



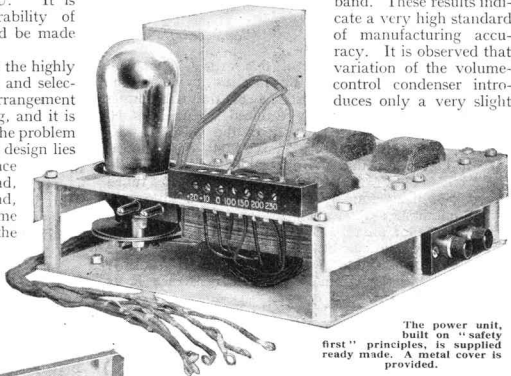
Complete circuit diagram of the new "Osram Four" A.C. kit receiver. A conversion set for modifying the 1931 Music Magnet to this circuit is now available. Both screening grids and the detector anode are fed through resistance R. Valve types are indicated.

accurate adjustment can generally be made in this way. The meter can conveniently be interposed between the “+” terminal on the L.F. transformer “T” and the high-tension feed lead which passes through the baseboard hole marked “U.” It is impossible to over-emphasise the desirability of accurate trimming, and no attempt should be made to hurry over this operation.

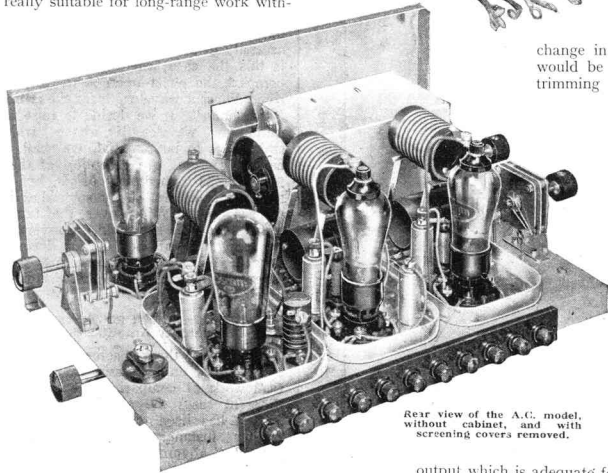
It is at first rather difficult to account for the highly satisfactory performance, as regards range and selectivity, of the “Osram Four.” Its circuit arrangement is, frankly, too conventional to be exciting, and it is only after a little thought has been given to the problem that one realises that the cleverness of the design lies mainly in the way that a judicious balance has been struck between, on the one hand, high magnification with poor selectivity, and, on the other, poor sensitivity with extreme selectivity. All this depends mainly on the extent of aerial-grid and H.F. inter-valve couplings, and the conclusion is reached that no more perfect compromise could have been made. The set is infinitely more sensitive and selective than any of the popular 1-v-1 combinations, and is really suitable for long-range work with-

out depending too much on critical control of reaction. It has no unpleasant tricks, and every control functions “according to plan.”

The ganged tuning system is highly successful, and seems to be even better than that of the earlier four-valve model. When an accurate trimming adjustment



The power unit, built on “safety first” principles, is supplied ready made. A metal cover is provided.



Rear view of the A.C. model, without cabinet, and with screening covers removed.

change in input circuit tuning, but it would be as well to make the initial trimming as well to make the initial adjustment with this condenser “all in.” The reaction condenser setting has an almost negligible effect on the detector grid circuit tuning, but here again it would perhaps be as well to “trim” with almost full regeneration.

It is rather beside the point to comment on the quality of reproduction of any well-designed set unless it includes a built-in loud speaker, or is definitely intended to be operated only with a certain specified instrument. Consequently, it will be enough to say that the “Osram Four,” either for battery or mains supply, is well up to present-day standards in this respect, and, moreover, has an output which is adequate for ordinary needs.

Finally, the question of price. The complete battery kit, with cabinet and valves, costs £10 15s., while the price of the A.C. model, similarly complete and with power unit, is sold for £17 15s. The conversion kit, including the power unit and valves, is obtainable for £9 19s. The makers are The General Electric Company, Ltd., Magnet House, Kingsway, London, W.C.2.