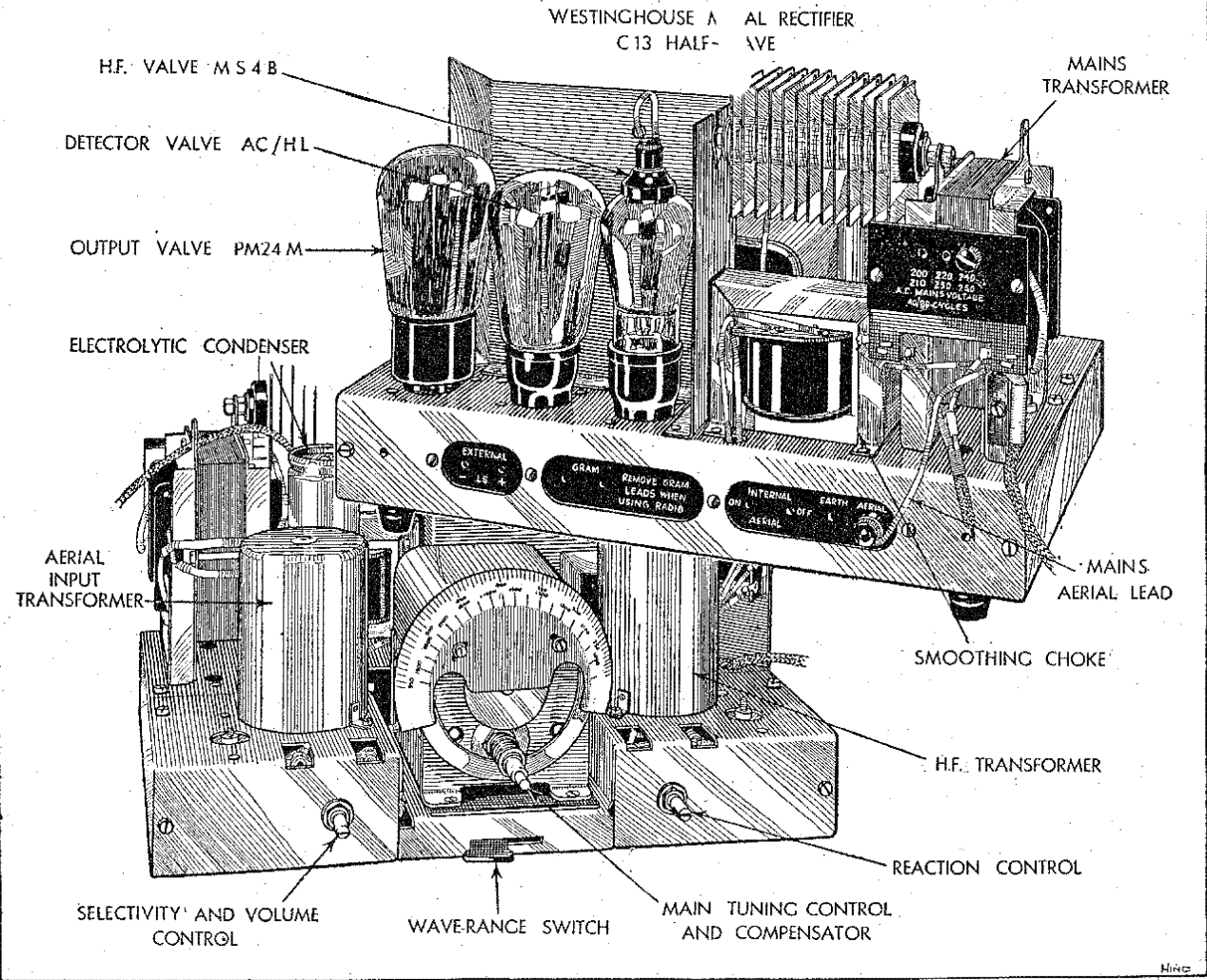
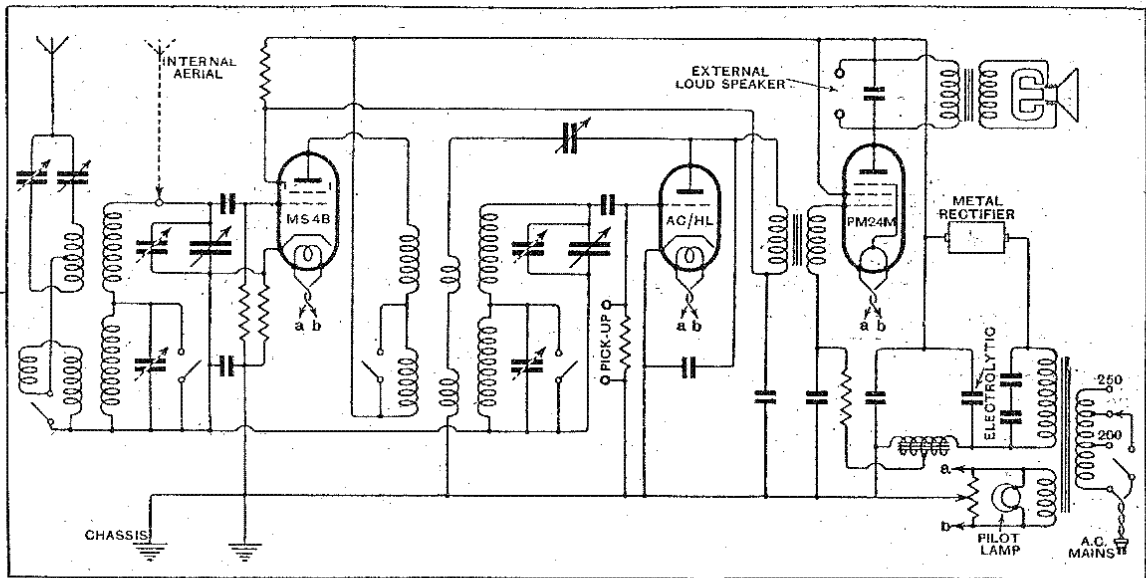
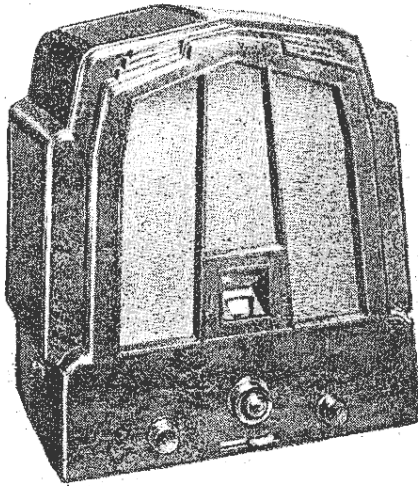


A SENSITIVE AND FLEXIBLE THREE-VALVE MAINS RECEIVER.



Circuit diagram and two views of the Ekco three-valve chassis, incorporated in the model M.23 receiver.



EKCO THREE-VALVE CONSOLETTTE.

Model M.23
for A.C. Mains.

A Self-contained Set with a Good All-round Performance.

IN these days the three-valve all-electric type of receiver is so well represented that very exceptional qualities are required to raise any particular make from the ruck. The Ekco Model M.23 gets off the mark well with a compact and well-proportioned moulded bakelite cabinet which itself encourages further acquaintance with the set. It may be accurately described as a self-contained receiver, for there is a choice of two internal aerials in addition to provision for an outdoor aerial, and the loud speaker—a permanent-magnet moving coil—is fitted inside the cabinet.

The tuning scale is calibrated in wavelengths, and our tests showed that an accuracy within one or two metres of the published wavelengths of stations could be relied upon at all parts of the scale. In no case was there the least difficulty in identifying a station from its wavelength setting. The main tuning control is fitted with a concentric trimmer, by means of which accurate alignment of the tuning circuits may be checked. On the right there is a reaction control, and on the left a combined selectivity and volume control, which regulates the aerial input.

Range and Selectivity.

The set is capable of a most versatile performance. Using the internal aerial (a short length of wire attached to the back panel), and without any special concentration in the adjustment of the controls, seventeen stations were received at full volume on the medium waveband. With so small an aerial an equivalent performance is not to be expected on long waves, but Daventry, Eiffel Tower, and Radio Paris were received at moderate volume.

The capabilities of the set and the full value of the input volume control are not appreciated, however, until the receiver is connected to a good outdoor aerial. The performance under these conditions gives striking proof of the adaptability of the set to local conditions.

With a 50ft. outdoor aerial at a distance of five miles from Brookmans Park, both transmitters could be cut down to a mere whisper and were quite inaudible when

detuned by about 10 metres on either side of their normal setting. By increasing the volume control by about a quarter of its maximum range of movement from minimum, no fewer than six stations could be received at full loud speaker strength between London National and London Regional with both stations working. Trieste (247 metres) and Heilsberg (278 metres) were quite clear of London National, and there was no background from London Regional when receiving Post Parisien (328 metres) and Scottish National (376 metres). These results serve to indicate the high figure of merit for combined range and selectivity which has been achieved.

An equivalent performance is available on long waves, the range being sufficient to give ten reliable programmes, and the selectivity enabling Königswusterhausen to be received at full strength without any interference either from Daventry or Radio Paris.

In spite of the fact that the set was tested within sight of the aerials at Brookmans Park, there was not the slightest trace of "break through" at the lower end of the long-wave scale. Trouble from this source has been successfully eliminated by including a small inductance between the medium- and long-wave aerial coupling coils. This inductance is mounted underneath the base of the set outside the field of the aerial input transformer, and it will be seen from the circuit diagram that it is short-circuited together with the long-wave coupling coil when receiving on medium waves.

The arrangement of the input volume control, which contributes largely to the excellent performance of the set in the matter of its adaptability to local conditions as regards range and selectivity, will also be best understood by examining the circuit diagram. The medium-wave aerial coupling coil is centre-tapped, and the two ends are connected through variable condensers to the aerial terminal. The condenser on the right constitutes the selectivity and volume control on the front panel, while that on the left is a pre-set bakelite dielectric condenser which is adjusted at the works. When the two condensers are adjusted to the same value the current in the two halves of the coil cancels out, and an exceptionally low minimum volume is obtained.

The screen grid H.F. stage is coupled to the leaky grid detector by a tuned H.F. transformer to which reaction is applied by the well-known combined capacity and magnetic coupling. The pick-up terminals are in parallel with the grid leak, so that it is essential that the pick-up leads should

be removed when receiving radio signals. Transformer coupling is again employed between the detector and the pentode power valve.

High-tension current is derived through a half-wave Westinghouse metal rectifier. The smoothing choke is included in the negative lead and tapped to provide grid bias for the last valve. Special care has been taken to ensure that the set complies with the recommendations of the Institute of Electrical Engineers for the installation of wireless sets working from supply mains, and the method of adjusting the primary of the mains transformer to the supply voltage by means of an insulated short-circuiting plug is neat and accessible.

Quality of Reproduction.

The output valve delivers an ample reserve of volume to the permanent-magnet moving-coil loud speaker. The bass response is uniform and shows no trace of resonance, while nothing is lost when reproducing the higher instruments of the orchestra, including the triangle—an exceptionally severe test for reproduction in the upper register. The loud speaker is particularly good when dealing with solo instruments, and speech, when reduced to the normal level of the voice, is life-like.

To sum up, the versatility of the Ekco Model M.23 is the feature which raises it above the average three-valve mains receiver. On the internal aerial no special skill is required to tune in the principal 50-kilowatt European stations, while with an outdoor aerial the set responds to intelligent handling of the input volume and reaction in giving an exceptionally wide choice of stations in circumstances which normally might be expected to give rise to trouble from local station interference. It is a set which can be confidently recommended for use in any part of the country, even in districts adjacent to the high-powered B.B.C. stations.

FEATURES.

General.—A table-model all-electric receiver with built-in moving-coil loud speaker and provision for the attachment of a pick-up and an external loud speaker. Tuning dial calibrated in wavelengths.

Circuit.—Three valves. (1) Screen grid H.F. with input volume control and transformer coupling. (2) Leaky grid detector. (3) Power pentode. Westinghouse half-wave metal rectifier. Small internal aerial, mains aerial and provision for outdoor aerial.

Controls.—(1) Main tuning (with compensator). (2) Selectivity and volume control. (3) Reaction.

Price.—17 Guineas.

Makers.—E. K. Cole, Ltd., Ekco Works, Southend-on-Sea.