M.200.

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TUNER AMPLIFIER B5X.

Tuner Amplifier B5X is designed for a wavelength range of 15 to 100 metres (approximately).

For practical purposes this range is divided into two parts viz :-

Range (1) 15 to 52 metres.
(2) 44 to 100 " approximately.

Two NR7 valves are used, one amplifying at high frequency and detecting, the other, note magnifying.

A pair of coils is provided for each range. The fixed coil holder on the instrument is for the grid coil and the movable holder for the reaction coil. The grid coils each have a hole in their base to enable them to be slipped over an ebonite guiding pin and in this way can be distinguished from the reaction coils which have no hole. The reaction coil for Range (1) has 4 tappings, while that for Range (2) has no tappings.

There is a coarse and also a fine reaction adjustment.

For reception of I.C.W., signal strength can be increased by tightening the reaction coupling. It should be noted that on these short waves, even a slight movement of the reaction coil causes an alteration to the tuning which may be sufficient to cause signals to be lost. This can be corrected by retuning with the variable condenser.

For C.W. reception, the same remarks apply. In this case, however, the reaction coupling has to be tightened until the set oscillates. If too much reaction is used, there may be a tendency for the signal to be swamped.

The two Igranic coils supplied should be plugged into the holders on the top of the model. These only form part of a low pass filter (i.e. a filter which will pass everything below a certain frequency) and require no further adjustment.

Provision is made on the instrument for using different anode voltages on the two valves. With NR7 valves, however, it will usually be found that best results are obtained when 100 volts H.T. are used on both valves. With this arrangement the terminals "Anode Battery Extra" + and - are shorted by the metal link supplied and the + H.T. lead from battery connected to this common point.

Separate filament rheostats are provided for the two valves, since it is generally necessary to over-run the filament of the detector valve in order to make it oscillate and the use of two rheostats obviates the necessity of over-running both valves.

A 4-jar condenser is connected, inside the box, across the output terminals so that it is not necessary to connect another condenser across the primary of the telephone transformer.

A diagram of the circuit is given in Fig. 1.

This receiver is intended to work with an aerial out of tune with the wavelength of the incoming signals. A single-wire aerial (T or inverted L shape) 50 to 150 feet long is suitable. Care must be taken to see that the aerial used does not come into tune either on the fundamental or on a harmononic with the incoming wave. Should this occur it will probably be found that the set refuses to oscillate or that its coming into oscillation is violent instead of fairly gradual. In actual practice it may be found necessary to adjust the length of aerial slightly when the wavelength is altered in order to make the set oscillate.

Calibration curves for Ranges (1) and (2) are shown in Figs. 2 and 3 respectively. The calibration will only be very approximate as it varies considerably with the tightening of the reaction coupling and the filament temperature, etc.

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