



Four-Tube Coto Symphonic Broadcast Receiver

Extreme selectivity is obtained in this set by the use of a built-in wavetrapp circuit. One stage of tuned R. F. is followed by a detector and two stages of A. F. amplification.

ALTHO the parts employed in the Coto Symphonic Receiver are familiar, since the couplers, variable condensers, sockets, and transformers have already become popular among set builders, the complete outfit is new and presents ideas which are most interesting.

The important feature of this receiver is that it is constructed with one step of tuned radio frequency amplification used in connection with a wave trap and that variable coupling is provided between the wave trap and the antenna coupling coil, the secondary and its corresponding antenna coil, and between the primary and secondary of the tuned R.F. transformer. While three adjustments are added in this way, they are not at all critical, making it possible to leave them unchanged over a wide range of wave lengths and operating conditions. However, when it is necessary, these elements can be adjusted and the sharpness of tuning or the amplification increased accordingly. The wave trap for example, is very loosely coupled under normal circumstances and, as a result, does not have a tendency to absorb energy on the wavelengths being received. However, it can be brought

into operation very quickly to cut out interference. The same thing is true with the primary-secondary coupling. For ordinary use, the coupling is made as tight as possible, being reduced only when interference calls for still sharper tuning.

The use of adjustable coupling between the primary and secondary of the tuned R.F. transformer is always a good idea, making it possible to obtain maximum amplification without causing the first tube to break into oscillation.

Many experimenters and set builders do not realize that, in a tuned R.F. receiver, tuning the secondary has the effect of tuning the primary. Therefore, if the coupling between the primary and secondary is too tight, the tuning action of the secondary condenser upon the primary or plate circuit is the same as if tuning were employed in the primary. That would, of course, cause the tube to oscillate. At the longer wavelengths, this effect is hardly noticeable, but at about 300 meters or below, even when neutralization is employed, the adjustment becomes critical and the tendency to oscillate quite pronounced.

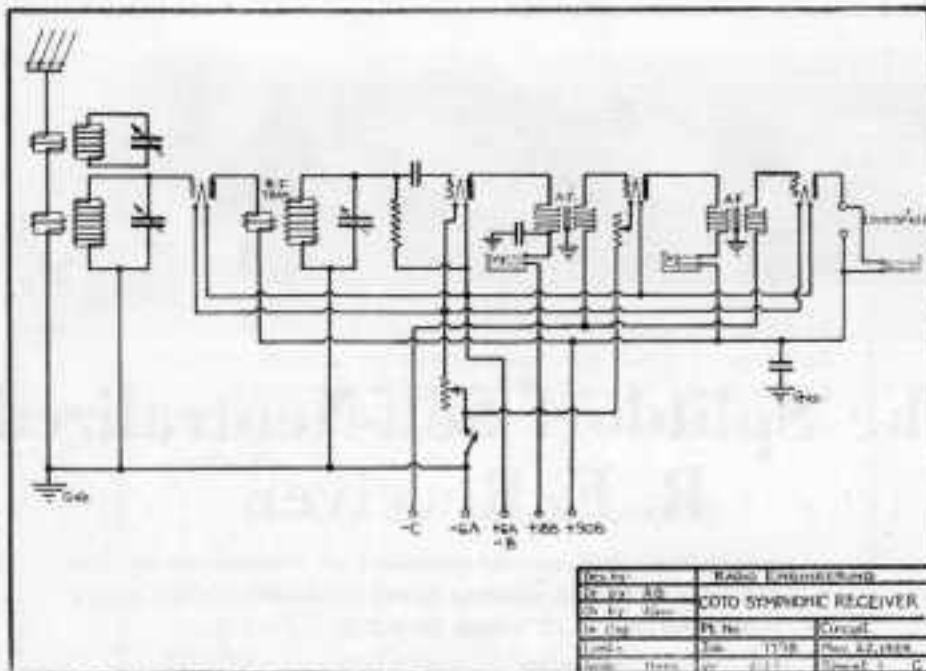


Fig. 2. Schematic wiring diagram of the Coto Symphonic receiver.

The sockets on this set are of very good design, for the terminals are insulated from the metal frame with hard rubber strips. Instead of the ordinary

The variable condensers are one of the first to be designed successfully with a single bearing for the shaft which carries the rotary plates. You can see the



Fig. 3. Showing the arrangement of controls for tuning the set.

type of spring contacts, a special arrangement is employed by which the springs grip each pin on both sides. Thus a large contact surface is obtained with a side-wiping action which keeps the pins clean and bright.

vernier by which fine adjustments of the capacity are obtained. These condensers, by the way, were also one of the first to be made with a metal end plate. Both stator and rotor plates are insulated from the frame.