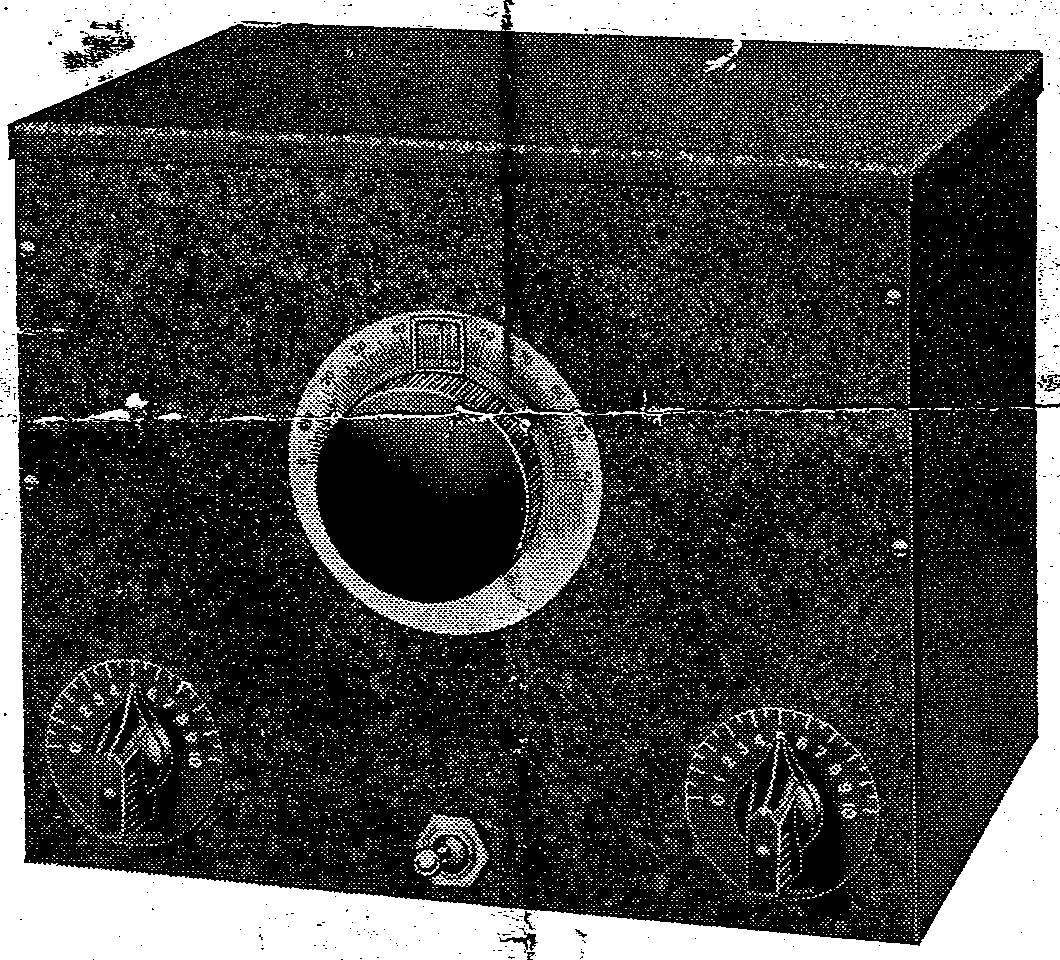
EDDYSTONE

'ALL WORLD TWO'

Battery Operated Receiver.

British Made.



INSTRUCTION MANUAL FOR INSTALLATION & OPERATION

STRATTON & CO., LTD., EDDYSTONE WORKS, BIRMINGHAM.

The Eddystone All World Two receiver is designed to give World-wide headphone reception with a minimum expenditure. It is the outcome of considerable research and during extensive tests results were highly satisfactory; America, Australia and other long distant stations being consistently received at good volume.

The set is simple to operate and has small current consumption. It is equally suitable for short wave broadcast and amateur band reception since it is fitted with the special Eddystone bandspread tuning unit, which allows continuous bandspreading on all wavebands. The waverange covered by the two coils supplied with the receiver is 15.5 to 52 metres, but if it is wished to receive on intermediate bands between 50 and 200 metres, extra coils are available.

There is a high degree of sensitivity combined with low noise level, and careful design of the aerial input circuit has eliminated tuning blind spots. Constant and smooth reaction has negligible effect on tuning and complete stability of handling is assured. A rigid die-cast chassis houses the component parts and provides ample screening.

The circuit embodies a screened H.F. pentode valve followed by a pentode audio stage. The aerial input circuit, although simple in design, ensures complete freedom from tuning blind spots, thus saving the extra cost of an H.F. stage which is the generally accepted medium for overcoming such trouble. Regeneration is obtained by a modified Reinartz circuit, feedback current being controlled by varying the S.G. voltage with a potentiometer. The high tension battery is suitably isolated to prevent current leakage through the potential divider circuit.

CONNECTING UP.

Place the desired coil in the coil base, a Mazda SP210 valve in the first valveholder V1, and an Osram KT2 output valve in V2. Use a set of 2,000 ohm headphones in the 'phone sockets and connect aerial and earth leads. Put the on-off switch in the "off" position (turned left) and connect the 120v. H.T. and 2v. L.T. batteries and aerial-earth wires.

OPERATION.

Set tuning dial at 0° and the tank condenser at position 0. Switch on by turning the switch to the right, and advance reaction control until a faint rushing sound is heard in the 'phones, thus denoting oscillation. Stations may now be tuned in. Leaving the tank condenser at 0, turn the tuning dial from 0 to 100 degrees, keeping the set just off oscillation for telephony and weakly oscillating for C.W. signals. Stations will now be heard. Turn tank condenser to No. 1 position and again tune from 0 to 100 degrees, and so on until the whole 10 positions of the tank condenser have been explored. Proceed likewise with other coil.

CONTINUOUS BANDSPREADING.

Tuning is accomplished by two parallel condensers. The band required is selected by the large condenser which is variable in ten equal steps only and is named the tank condenser. A small vernier condenser slightly larger in capacity than the capacity difference between the steps on the tank condenser, is used for final tuning.

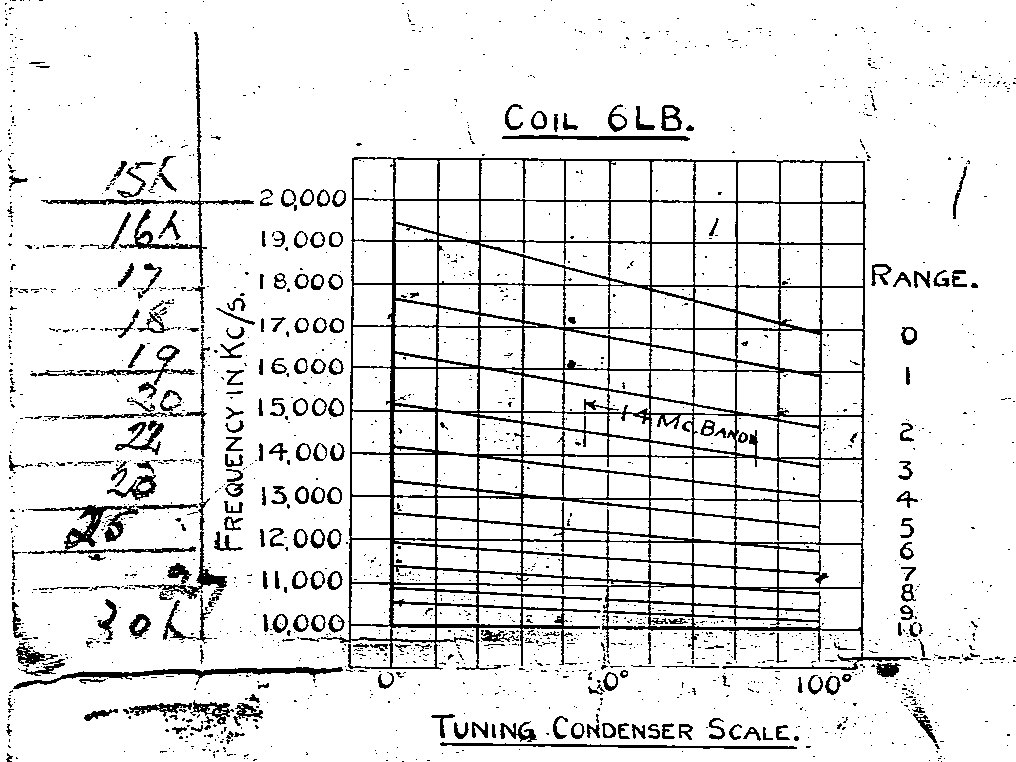
Suppose the coils were tuned in the normal way with a .00016 mfd. variable condenser. Then the 6LB coil would tune from approximately 19,350 kc/s. at 0° on the dial to 10,100 kc/s. at 100°. Thus, a frequency bandwidth of 9,250 kc/s. is obtained by turning the condenser through 100 degrees on the dial. With the bandspreading system employed in this receiver the band required is selected by putting the tank condenser knob on, say, No. 5 position, and the small tuning condenser then tunes a frequency bandwidth of only 855 kc/s. approximately, as the dial is rotated from 0 to 100 degrees. Since we have only covered a 1/10th of the previous waveband tuning is ten times as easy as with a normally tuned receiver. The tuning condenser has a 9 : 1 slow motion head incorporated in its movement, and by this tuning difficulties are still further decreased.

To give the user an idea of how the various bands are "spread" the curves shown overleaf were taken on a specimen receiver. These show the effect of bandspreading, the numbers on the curves indicating the position of the

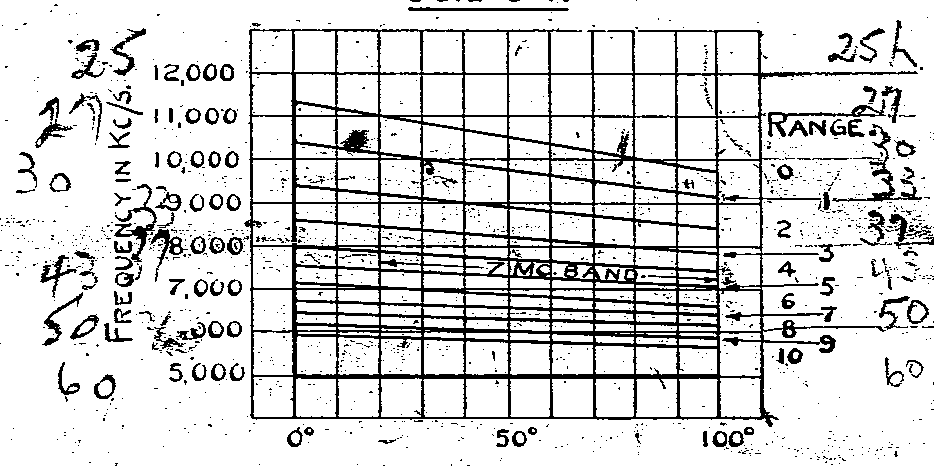
pointer knob on the tank condenser, while the figures on the horizontal line refer to the degrees on the tuning condenser dial.

It will be seen that the 14 megacycle amateur band is "spread" over 40 degrees on the 6LB coils, while the 6Y coil brings in the 7 megacycle band over 80 degrees on the dial. These figures show why this receiver is equally useful for amateur reception. The overlaps between the various settings of the tank condenser have been arranged so that no stations will be missed.

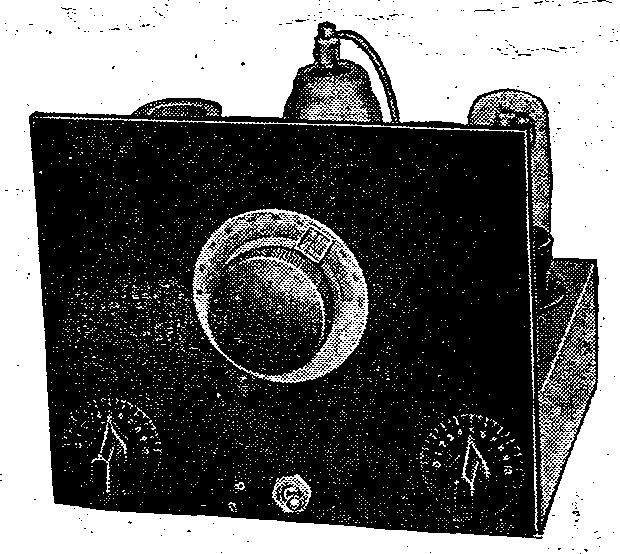
It should be noted that the curves shown are for an average receiver and are to give the listener some knowledge of the wavelengths covered by each position of the tank condenser. Individual receivers will vary somewhat, due to different valve and circuit capacities. The effect of aerial load, although minimised in this receiver, will influence the wavelengths covered to a small degree.

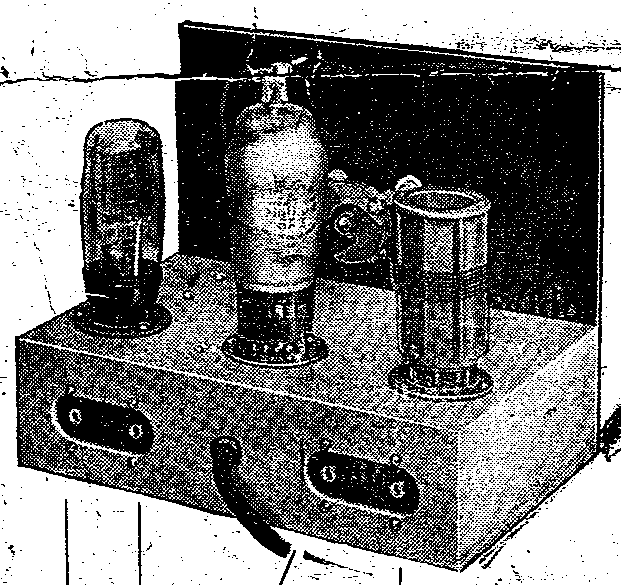


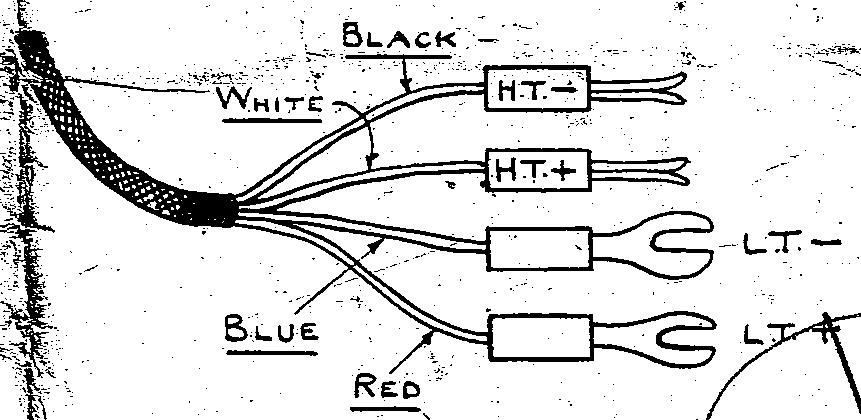
Waverange: 19,350 Kc's—10,100 Kc's
(15·5m.—29·7m.)



Waverange: 11,350 Kc/s—5,690 Kc/s.
(26·45m.—52·7 m.)







BATTERY CONNECTIONS.

THE AERIAL AND EARTH.

The qualifications of a good aerial are firstly, that it shall be in as open a position as possible, that is, not badly screened by nearby objects, such as trees or buildings. Secondly, that it shall be as high as convenient, at least 30 ft. ; and thirdly, it should be well insulated and in one piece without any frayed strands right to the lead-in. The down wire from the horizontal section should always be well away from buildings and never carried down a wall. Inside the house, the lead to the set should be direct and short.

For the outside wire, a single strand of 14g. enamelled copper is highly satisfactory, while the lead inside the house to the set should be insulated flex.

The most usual type of aerial is the inverted L type shown in diagram A.

Length of Aerial.

An all round standard to work to for good short wave reception is about 50 ft. of wire from the free end of the aerial to the set.

To obtain maximum selectivity, a length of wire down to as low as 20 ft. can be employed. If atmospherics cause considerable interference, a shorter aerial is to be preferred to a longer one. For short wave reception, the aerial can be of any length between 20 ft. and 60 ft. There is usually a loss of volume below 40 ft.

The Earth.

The earth lead should consist of insulated wire from the set to the point where the connection to earth is made. Do not use bare wire, as it may result in premature earthing to walls or pipes and so cause noises in the receiver or indifferent reception. The earth connection should be well soldered to a copper earth tube or similar object buried in damp ground. It is important that the length of the earth connection is kept as short as possible. A good earth is always desirable.

Notes on Aerial Erection.

See that the aerial does not sway unduly, on the other hand, it is not necessary to have it ultra taut.

Arrange so that it can be let down at least from one end for an occasional inspection.

When pulleys are used for hoisting and letting down, see that they are of the type in which the rope or wire cannot slip out of the pulley groove and jam.

Covered stranded steel wire, such as Electron aerial wire or Superaerial, makes good hoisting and supporting wire for the aerial proper.

Well galvanized stranded iron wire is good for guying poles and masts.

Do not fasten the aerial direct to a tree which can sway in a wind. Unless left very loose, which is inadvisable, the aerial will break. In this case a pulley and balance weight should be used.

General Remarks.

If the aerial is sloping, the highest end should be the one which is away from the receiver. The [illegible] from the horizontal section immediately in front of the insulator and not from a short distance along the wire. The best method of obtaining a down lead is to continue the main aerial by securely twisting it at the insulator and so avoiding the necessity of making a soldered joint.

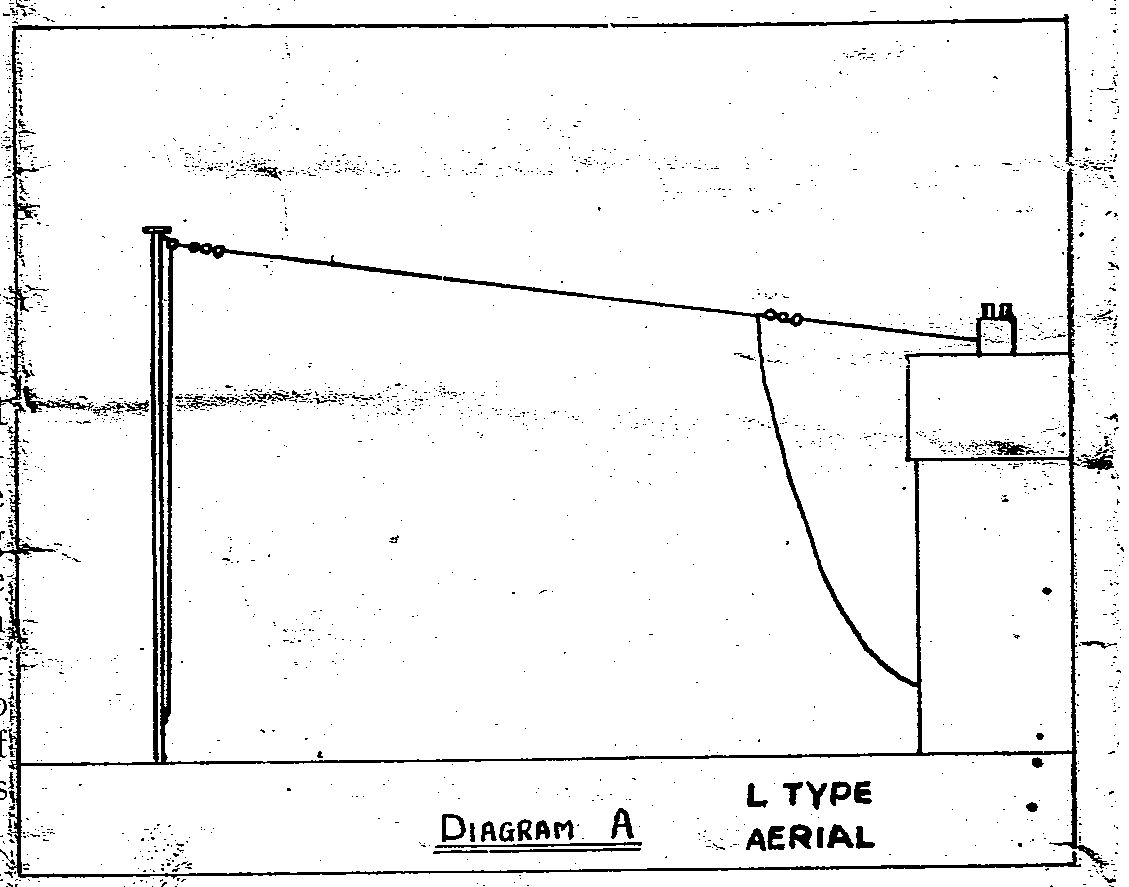


DIAGRAM A — L TYPE AERIAL