

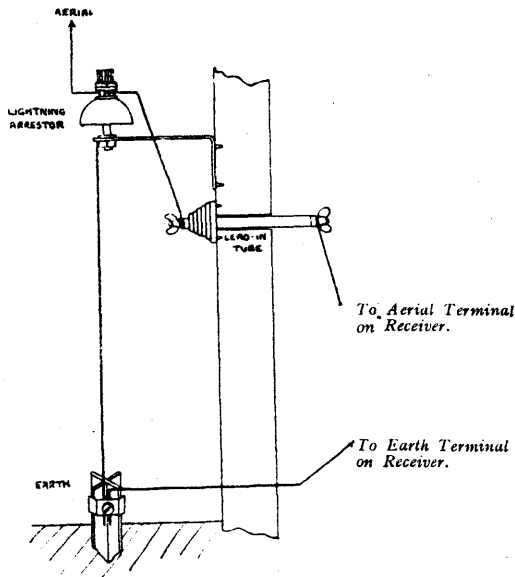
THE AERIAL AND EARTH.

It is always well worth while to erect the aerial and earth system in as efficient a manner as possible to suit local circumstances. A little thought and care in planning a good aerial layout will amply repay the listener by better and more consistent signals.

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 position 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 sketch A. Another equally good, alternative for some installations is also the T aerial shown in sketch B. In this case, the down lead should be taken from the centre and soldered. For short wave



reception, a vertical type of aerial consisting of a single wire suspended in as vertical a position as possible gives very good results; this, however, is only recommended when it can be suspended from a good height and is not very closely screened.

DIRECTION OF AERIAL

In theory, best results are obtained from a given station when the lead-in end of the aerial is pointing in the direction of that station. In practice, it is seldom that a very pronounced difference is found.

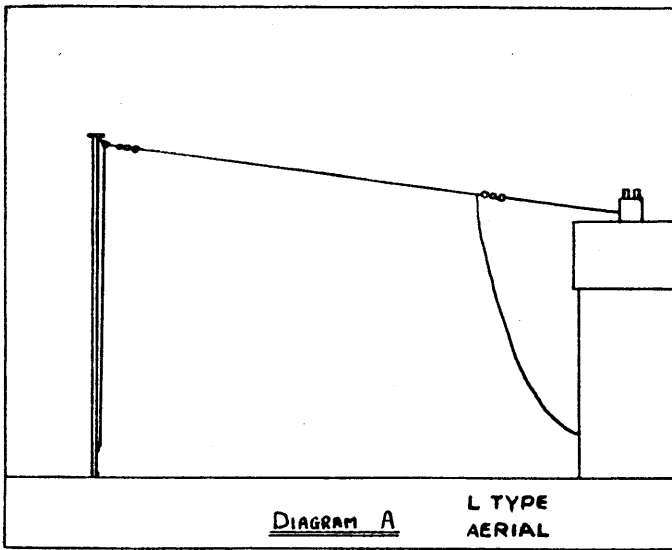
LENGTH OF AERIAL

An all round standard to work to for good medium wave and short wave reception is about 60 ft. of wire from the free end of the aerial to the set.

On the medium waves, 100 ft. of wire will give rather more sensitivity and volume from very distant stations, but the selectivity of the set will be reduced. To obtain maximum selectivity, a length of wire down to as low as 20 ft. can be employed. If atmospheric 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.

LEAD-IN ARRANGEMENTS

The sketch at the side shows the lead-in arrangement when the specified aerial equipment is used. The aerial wire itself is actually led right through the terminal of the lightning arrester without any break, and carried on to the special Eddystone Lead-in. The lightning arrester, which is fastened to the wall by a metal bracket, is capable of taking the usual strain which occurs at the point of lead-in, thus saving such strain on the lead-in tube. The bottom end of the lightning arrester should be connected direct to earth as shown, and the earth lead from the set can be taken to the same earthing tube. If a lightning arrester is not fitted, the usual change-over switch can be employed and the aerial should be disconnected from the set by this during thunder storms. A properly earthed aerial system is actually a safeguard during a storm.

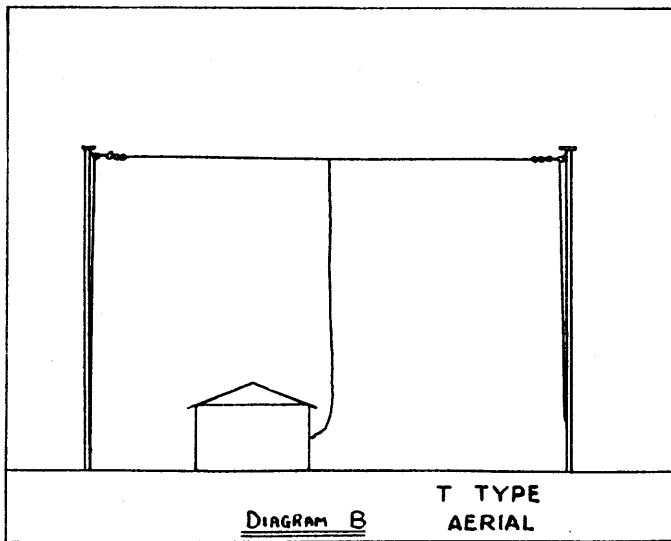


GENERAL REMARKS

If the aerial is sloping, the highest end should be the one which is away from the receiver. The down lead should be taken from the horizontal position 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.

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 partial earthing to walls or pipes and so cause noises in the receiver or indifferent reception. The earth connection should be well made 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. The earth lead may sometimes be omitted for short wave reception without loss of signal strength, but on the medium wavebands, if this is done, a distinct loss of volume will be found with increased selectivity and much sharper tuning. 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.

Stranded steel wire covered, 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, therefore a pulley and balance weight should be used.

