

TYPICAL RIG

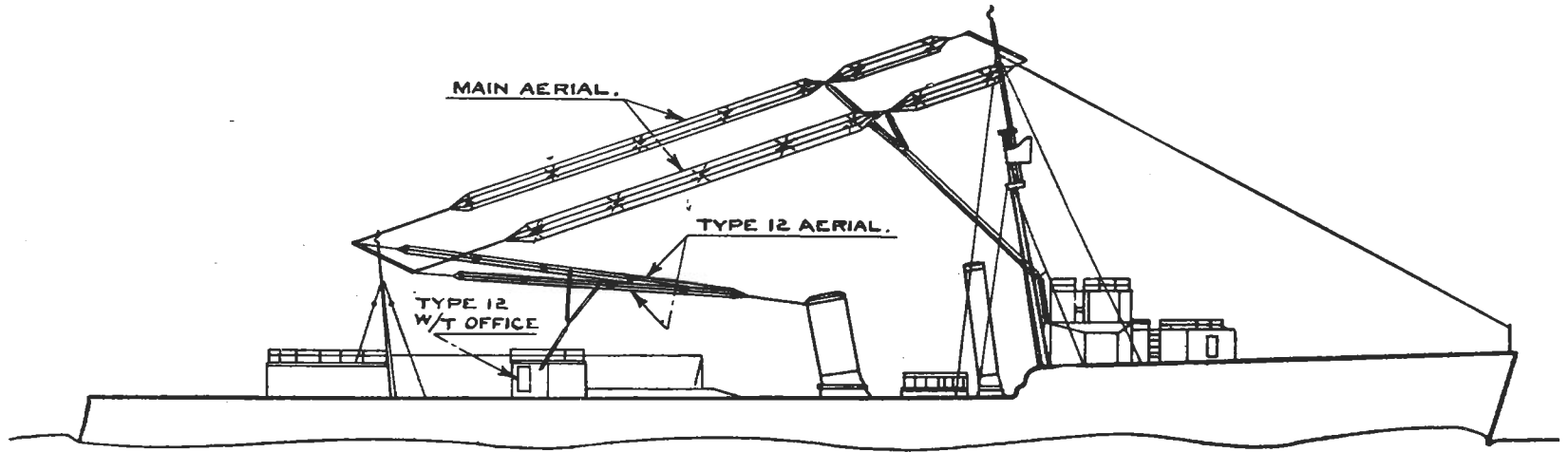


FIG. 6.

CHAPTER III.

FITTING UP.

Aerial.

Figure 6 shows a typical rig for a Flotilla Leader. It follows naturally that the construction and position of the aerial will depend very largely on the class of ship. The following general remarks on the subject should be studied :—

It should be remembered that the aerial is required for use on both D and Q waves, so that it will be necessary to keep within certain dimensions in order to obtain both wavelengths with the aerial coil supplied. In destroyers a double fourfold aerial of Pattern 1082A, 7/23 L.S.G. copper wire, 75 feet in length, is used; or in older destroyers and torpedo boats a single fourfold aerial 90 feet in length. The best size of aerial, however, will have to be found by trial.

Care should be taken in selecting the position for the aerials that there is a good straight lead for the feeders, clear from rigging, smoke, &c.

Erection of Instruments.

It is laid down that the fitting of the majority of the transmitting instruments is to be done by the contractors, but the telegraphist ratings should bear in mind that they have to use the set, so that a study of the specification and assistance in erecting the apparatus will probably repay them.

Figure 1 shows the general lay-out of the transmitting gear.

From Figure 1 it will be seen that the rotary converter, transformer, protecting coils, transmitter and impedance coil are fitted up in the silent cupboard. The method of fitting the rotary has been described already.

The Transformer is fitted inside the cupboard and secured to the bulkhead at the back. It is important that the metal frame and case of the transformer should make good electrical connection to earth with both the lead lining of the cupboard and the lead cover of the cable connected to the low-tension terminals. Great care must be taken when supplying power to the transformer, as this will create a voltage dangerous to life at the high-tension terminals.

Fitting Impedance Coil.

The impedance coil is on the bulkhead in the cupboard close to the transformer. Its position is shown in Figure 1. The frame of the impedance coil should be earthed as in the case of the transformer.

Protecting Coils.

These are to be erected by the ship's staff in the position shown in Figure 1.

Transmitter.

This is mounted on the shelf in the silent cupboard above the rotary. It stands on two strips of wood about $\frac{1}{4}$ inch thick. The exact thickness of these strips of wood is to be adjusted so that the distance between the transmitter and the rotary converter will agree with the length of the copper strips which connect these two instruments together. Two short lengths of Pattern 611 cable connect the terminals of the sliding mutual to the two cupboard insulators. It will be seen, then, that the position of the transmitter is governed to a certain extent by the position of the rotary and by the leads from the disc spark gap to the transmitter. These leads are of flat copper, 2 inches wide. The fitting of these leads is of great importance. They should be truly parallel and as close together as possible without sparking across. In order to get D and Q waves on the same transmitter it is very necessary to remove all outside inductance from the transmitter. By outside inductance is meant the inductance of leads, spark gap, &c. It has been found that the most important places where useless inductance is found are the condenser itself, the spark gap and the leads mentioned above. The condenser has been designed especially to eliminate as much inductance as can reasonably be expected. The special fittings in the rotary spark gap are for the same purpose.

With regard to the inductance of the leads, broad flat strips very close together are as nearly non-inductive as it is possible to get. The closer they are together the less the inductance. In fact any alteration of the relative position of these leads might affect the tuning on lower waves considerably. This fact should be made careful note of.

Cupboard Insulators.

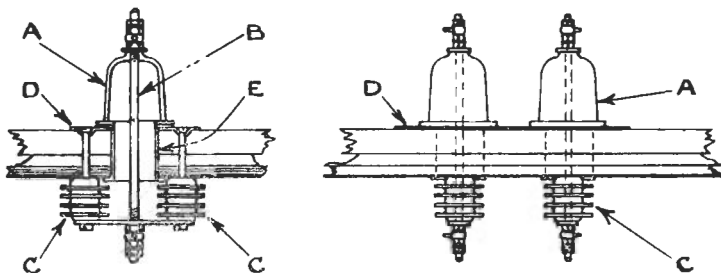
The fitting up of the cupboard insulators is done by the dockyard or contractors and is not complicated. These insulators are to take the leads from the mutual to the aerial coil and earth respectively. They are shown in Figures 1 and 8.

The position of the aerial coil should be selected with care. Six brass hooks are supplied and fitted by the contractors in the positions shown. Pattern 1083 cord, insulating, is supplied to secure the coil. It should be suspended carefully so as to prevent it from swinging about when the ship is rolling.

Above the cupboard are the deck insulator and earth ring, and close to it the earth ring fitting and radiation meter shunt. These are fitted by the dockyard or contractors.

CUPBOARD INSULATORS.

Scale :— $\frac{1}{2}$ size

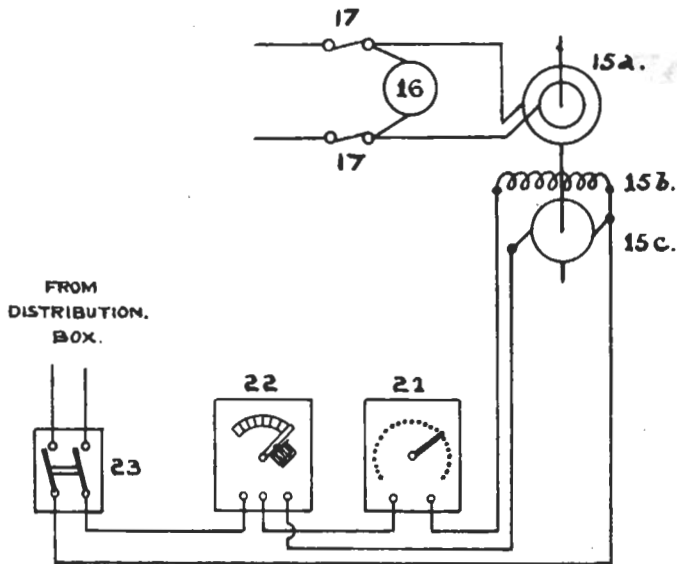


REFERENCE.

- A. Patt. 1836, Insulator Glass.
- B. Brass Rod, $\frac{3}{4}$ -inch diameter, with Nuts and Cable Eyes
- C. Patt. 835, Insulator Porcelain.
- D. Lead Plate to take Brass Earthing Terminal.
- E. Lead Lining of Hole.

FIG. 7.

DIAGRAM OF WIRING OF ROTARY CONVERTER



REFERENCE.

- | | |
|--|---------------------------------|
| 15a. Slip Rings | } Converter, Rotary, Patt 4719. |
| 15b. Field | |
| 15c. Commutator | |
| 16. Patt. 4840, Frequency Meter. | |
| 17. Patt. 772, Cut-outs, D.P. | |
| 21. Patt. 4721, Field Regulator. | |
| 22. Patt. 4720, Starter for Rotary Converter | |
| 23. Patt. 891, Switch D.C. Supply. | |

FIG. 8.