

# TYPE 706

XBS

Date of design:-- 1918.

This is a Sound Telegraphy receiving set consisting essentially of a pair of Mark IV Plate hydrophones (1)(2) (see page XA2) fitted one each side in the fore part of the ship's hull, connected to telephones (7) and a dry battery (5). This constitutes the "untuned" position for reception. To reduce interference from hammering or other noises a "tuned" position is provided. In this position the hydrophones (1)(2) and the telephones (7) are coupled together by means of a tunable reed relay (9). The receiver is usually fitted in the chart house with remote reception (telephones only) in the D/F office for "R/A position finding".

The receiver contains a tunable relay (9) and a single pole "on-off" switch (8) operated by the telephone hook so that the tuned circuit is completed when the telephones (7) are lifted off. The dry cells (10) for the relay microphone circuit are also placed in the receiver. Mounted on the receiver are a change-over switch (3) for hydrophones (port-starboard) and a change-over switch (6) for "tuned-untuned" positions; also a double-reading ammeter (4) and two terminals for connecting an external resistance (14).

The relay consists of a steel reed (11) placed in the magnetic field of a bobbin (12) and in mechanical contact with a carbon granule microphone (13). The reed is tunable between 800 and 1200 cycles/sec. When C.O.S (6) is to "tuned" position the bobbin is placed in series with one of the hydrophones and the external dry battery (5). Variations of current in this circuit at or near the resonant frequency of the reed (11) cause it to vibrate and alter the resistance of the microphone (13) at this period. The microphone (13) being in series with the telephones (7) and the internal dry battery (10), a musical note will be heard in the telephones (7).

Hammering etc.; may cause the reed (11) to vibrate by shock excitation, but since it will vibrate at its natural frequency the note will still be of this pitch.

The resistance terminals are normally short-circuited but an adjustable resistance (14) may be connected here (in series with relay bobbin) of 600 or 700 ohms. Adding resistance merely makes the system less sensitive and this may be used to reduce extraneous noises but it must be remembered that it may render a weak signal inaudible.

The ammeter (4) registers the current flowing in the hydrophone circuits and is double-reading since the needle is deflected to opposite sides for port or starboard hydrophones (2)(1).

## Care and Maintenance.

Regular tests are essential and should be carried out as follows:-

- (a) Untuned circuit. Read the current in each hydrophone circuit (0.2 - 0.8 amps),  
If no current in one side - Break in that hydrophone circuit.  
If no current in either side - Break in common battery lead, ammeter or both hydrophone circuits together (improbable).
- (b) Tuned relay circuit. Move switch to "tuned" position and listen with telephones. Tap box sharply, when the note of the reed should be heard.  
If nothing heard - (1) Test internal battery and the relay circuit.  
(2) See the resistance terminals are properly shorted.

(c) Hydrophones.

- (1) Remove cover and see "L" shaped levers free and permitting buttons to touch.  
(Never use oil on the pivot).
- (2) Tap the ship's side in the vicinity of the hydrophone. Tapping should be heard in

the receiver. If nothing is heard, and assuming remainder of circuit is correct, clean buttons by rubbing lightly with fine glass paper. Further information concerning care and maintenance will be found in A. F. O. 135/28.

Note:- The production of this set has been taken over by the Portland A/S School, but telegraphist ratings are responsible for its upkeep at sea. (vide A. F. O. 749/28).

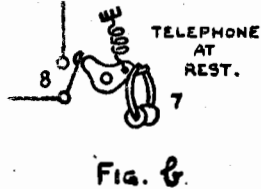
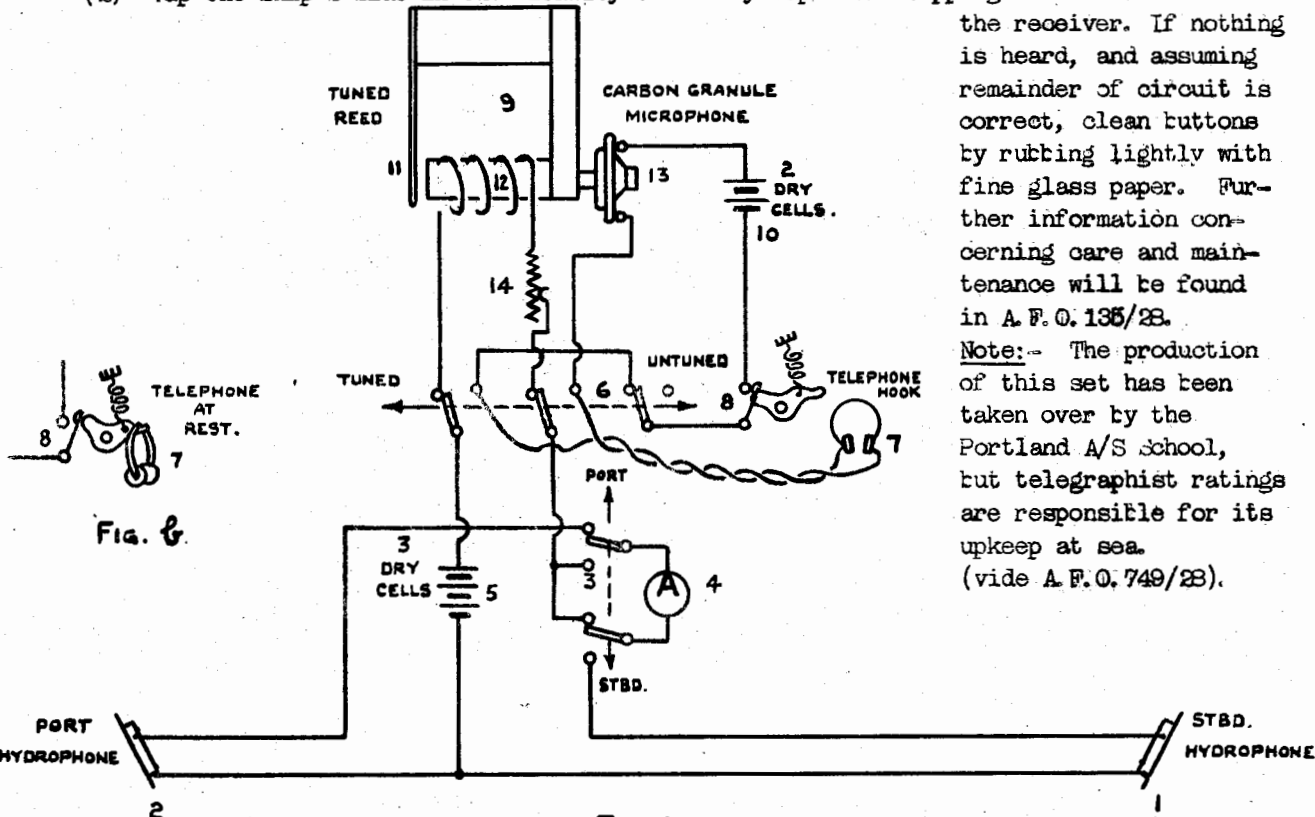


Fig. 2.