

SUB-SECTION **LC** SENSEFINDERS

SENSEFINDER S41

PAGE LC 2

SENSEFINDER S42

PAGE LC 3

SENSEFINDER S41

Date of design:- 1923
 Where fitted:- D/F Outfit SD.
 Reference:- Admiralty Handbook of W/T (1931) paragraph 802.

Sensefinder S41, formerly called the "Eliminator Reciprocal Bearing", consists of the following:- A non-inductive resistance (37) which is variable in four stages by a switch (30, 100, 200, 400 ohms), a 2-pole, 2-way "D/F Sense" switch (36) and a 0.2 jar coupling condenser (35). An inductance No. 1 tuner (38) is connected externally.

In the "Sense" position the mid-point of the goniometer windings is connected through No. 1 tuner (38) to one end of the non-inductive resistance (37) and thence through the coupling condenser (35) to the grid of the first valve of Amplifier M9. The other end of the non-inductive resistance (37) is connected to earth. The filament of the first valve of M9 is connected to earth through a 1 mfd. condenser (91), so that variations of potential across the non-inductive resistance (37), due to the vertical effect of the loops, is applied between grid and filament of this valve. It will be seen that the coupling condenser (35) is in parallel with the secondary condenser (42) of tuner A41. In the D/F position one of the contacts of "D/F - Sense" switch (36) places the coupling condenser directly in parallel with the grid tuning condenser (42) (in Tuner A41) so that the tuning will not be affected when switching over from D/F to Sense and vice versa. The other contact of this switch earths the mid-point of the goniometer windings so that the vertical effect is eliminated.

Operation in "SENSE" position. To obtain correct phasing two things are essential:-

1. The loops, used as vertical aeriels, must be detuned capacitively. This is done, first by tuning for resonance with the No. 1 tuner (38), and then decreasing the amount of inductance.
2. Tuner A41 must be in the "Direct" position, as in the "coupled" position an intermediate circuit is introduced which alters the phasing.

The search coil (21) will have been left in the position giving a zero. The act of moving the switch (36) to "sense" will once more bring in the signal, if the search coil (21) is then rotated through 90°, the signal will be found either to get stronger or weaker depending on the direction of rotation. The direction giving the increased strength is selected, and the "sense arrow" will then be pointing to the correct bearing. This will, of course, be either the original zero or its reciprocal.

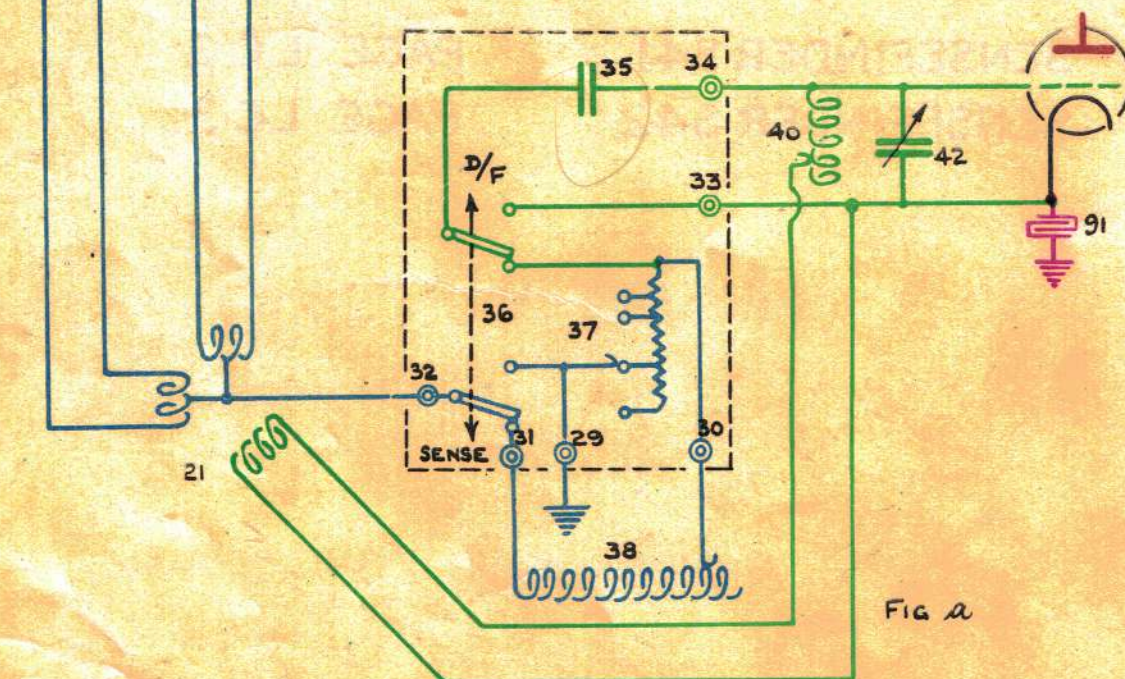


FIG. A

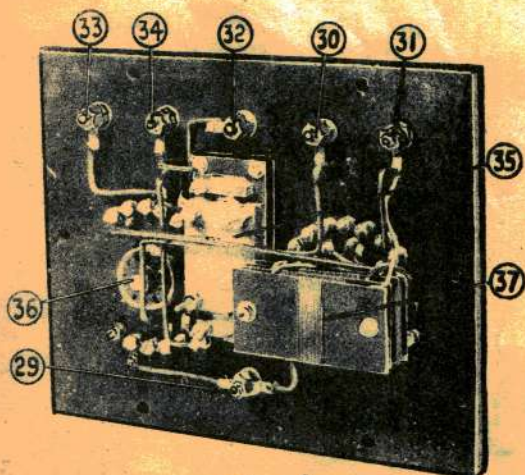


FIG. B

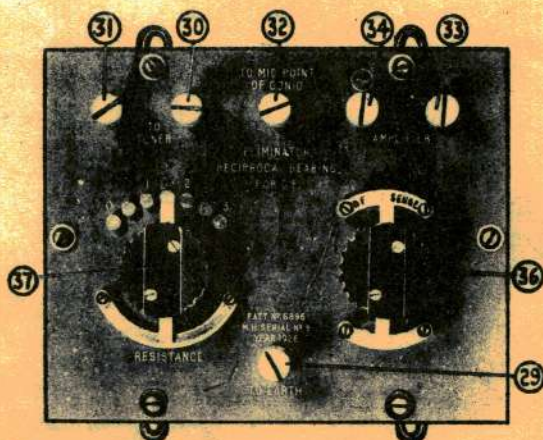


FIG. C

