

Date of design: 1925.
 Frequency: 540 cycles/sec.

This set consists of three Tessenzen type oscillators (1)(2)(3) (see page UA3) and motor alternator (28), in addition to the usual switchboards and keys. The motor alternator is fitted with a Y size automatic starter (59) (see page MA7) as well as coarse (37) and fine (38) speed regulators, and alternator field regulator (36) controlled from silent cabinet. A.C. output 240 volts at 12 amps. The power supply is taken from the ring mains to the main supply board through a D.P. switch (52) from which it is distributed to main and auxiliary circuits, D.C. and A.C. ammeters (56) (28) being fitted. Each oscillator has its own D.C. supply through a D.P. switch (18)(19)(48) and pair of fuses (45)(46)(47), one kick coil (20) being used for all three oscillators. A.C. supply is fed to this board through a pair of fuses (27) and there is also a pair of fuses (4)(5)(6) on the magnetic keyboard in the A.C. supply to each oscillator, these latter being arranged to blow first.

D.C. supply to the motor alternator and to the auxiliary circuits is taken each through its own pair of fuses (40)(41). The D.C. ammeter (56) registers total current taken by the oscillator field coils. The magnetic key and magnetic switches connecting the appropriate portion of the back shunt resistance are also situated in this board. Magnetic keyboard contains the listening through switch (10) for oscillator reception and the magnetic switches (7)(8)(9) completing the A.C. supply to the oscillators. In the cabinet, there is a magnetic switch (35) which short circuits or shunts the hydrophone telephones when the key (23) is pressed, otherwise the noise would be deafening. The resistance (22) can be adjusted so that own transmission may be read. There is also the morse key (29) and the three control switches (21)(22)(29) and indicating lamps (49)(50)(51) for oscillators. On making these switches the appropriate section of back shunt (15)(16)(17) is connected and the A.C. supply to the oscillator is completed at the magnetic keyboard by the magnetic switches (12)(13)(14). The A.C. supply is connected to the back shunt by the action of the magnetic key (11) when the morse key is not pressed. The back shunt consists of three sections of resistance arranged in parallel (15)(16)(17). They are connected to the back contacts of the magnetic key (11) through magnetic switches (12)(13)(14) which make when the appropriate control switch in the silent cabinet is made.

The two forward oscillators are fitted in symmetrical and corresponding positions on either side of the ship to facilitate direction finding when receiving. If the oscillators are inclined the angle between the plane of the diaphragm and the vertical plane containing the centre line of the ship is not to exceed 20° . They should be placed so that access from inside the ship is easy. The after oscillator is placed facing astern so that the plane of this diaphragm cuts the vertical plane of the fore and aft line of the ship at right angles, its function being to transmit signals in the direction astern. This oscillator may either be placed in a keel compartment in which case its diaphragm is in contact with water in a flooded compartment or in the superstructure. In this latter case the oscillator is contained in a portable watertight box. The former position is, however, preferable because of its greater depth when the submarine is on the surface or at periscope depth.

Date of design:- 1927.

Frequency:- 1000 cycles/sec.

The chief feature of this set is the introduction of a 1000 cycle alternator and oscillator. In all other respects this set is similar to Type 105 (see page UB7).

Water noises have a frequency approximately equal to the resonant frequency of the diaphragm of a Hessenden oscillator (see page UA3) i.e., about 300 cycles per second. Ship noises due to such things as machinery running on board usually have frequencies of 500 - 600 cycles per second. By using 1000 cycles/sec as the transmitted frequency it is much easier for the operator to differentiate between the incoming signal and such noises. In addition this note is less tiring to read. To get the most efficient results it is necessary that the resonant frequency of the oscillator shall be the same as the alternator frequency and this resonant frequency is controlled by the stiffness of the clamping discs (see page UA2 figure a.). The production of a 1000 cycle oscillator is therefore only a matter of fitting heavier clamping discs.

In this set the frequency meter is supplied from a small magneto mechanically driven from the motor alternator instead of being wired in parallel with the A.C. voltmeter as in earlier sets.

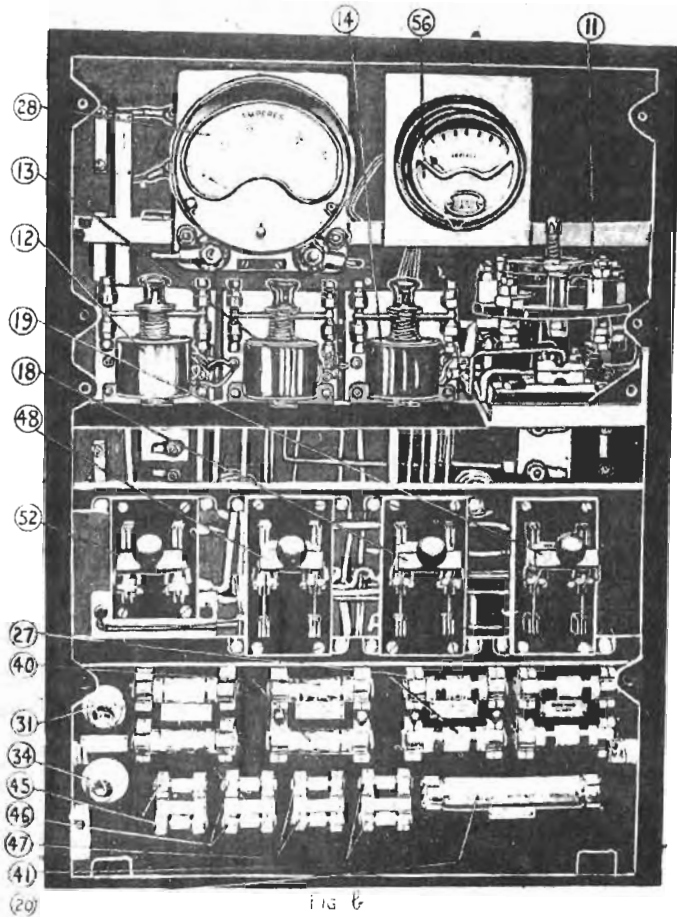


FIG B

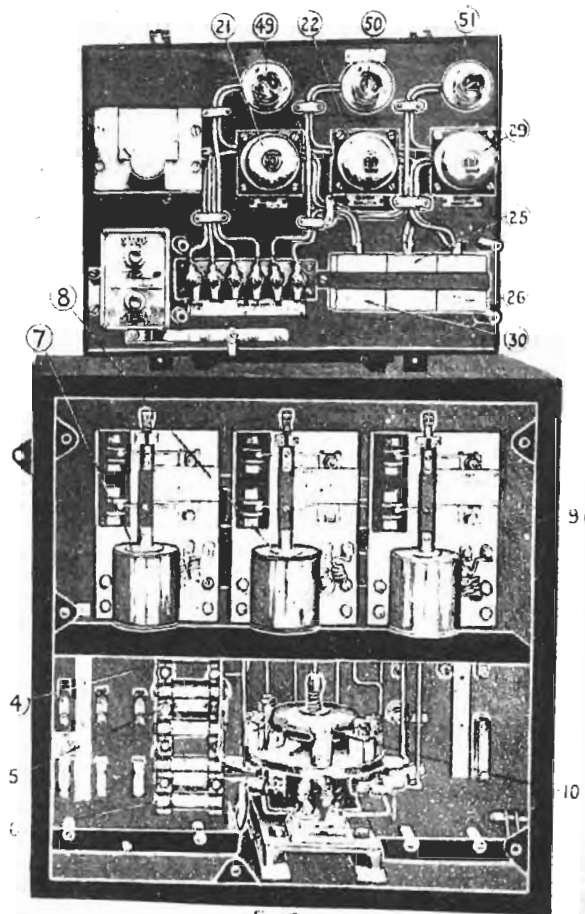


FIG C

UB6

TYPE 105

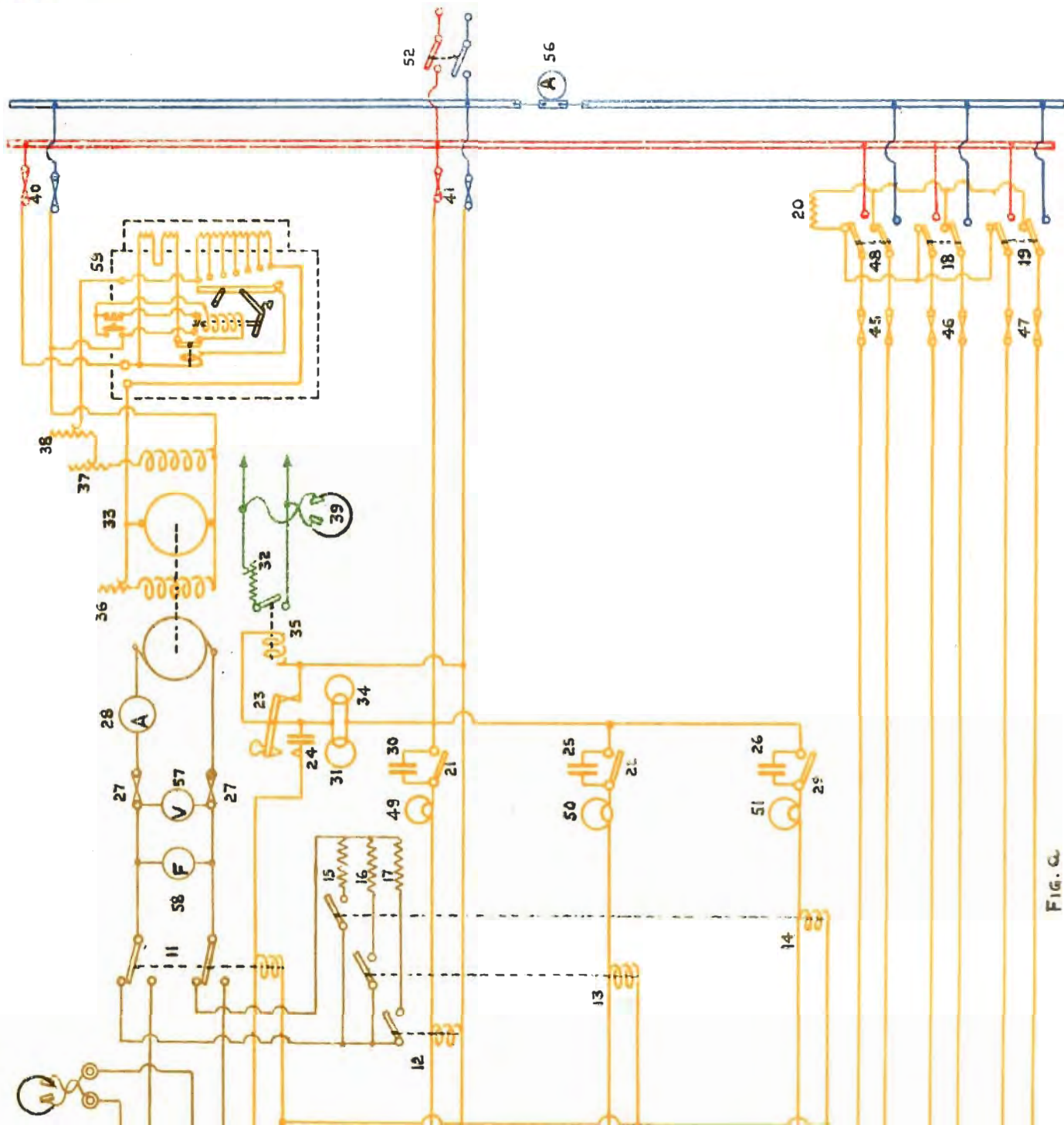


FIG. C

