# AERIAL CIRCUITS

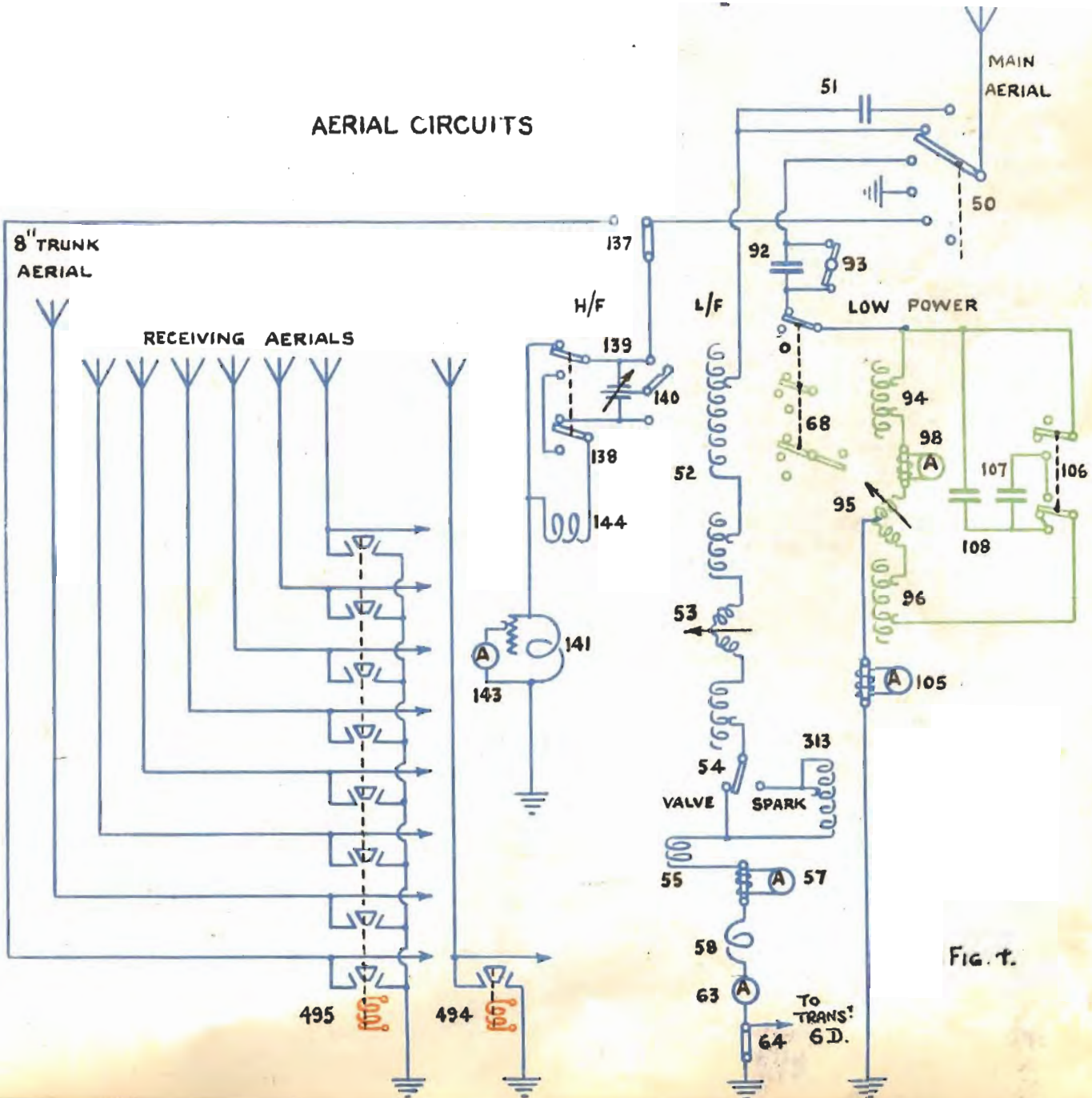


Fig. 1.

# TYPE 48



## AERIAL CIRCUITS

The aerial circuits and methods of connecting the transmitters to the aerial are shown in figure r. The main aerial is connected to the L/F, H/F or Low Power sets by the aerial C.O.S. (50) and the aerial can be isolated, when taking D/F bearings, or earthed, by setting the switch (50) to the appropriate position. The handle controlling the aerial C.O.S. (50) is fitted in a convenient position over the valve panels.

To prevent the set being used on H/F when ammunitioning ship, etc., a removable plate is fitted to the mounting for the handle of the switch (50). When the plate is removed a spring loaded plunger prevents the handle being moved to the "H/F" position and a notice is exposed which warns the operator that it is "Dangerous to Transmit on H/F". The removable plate is retained by the Officer of the Watch during the time it is dangerous to use the H/F transmitter.

The main aerial can be connected to the 8 pole cabinet switch (495) for H/F reception by means of a link (197).

One of the single wire receiving aerials is connected to the double pole cabinet switch (494). This switch (494) operates for all types of transmission (See D.C.Switch (14)) and the aerial connected to it is used by the operator controlling the low power set.

All the remaining single wire aerials and the 8 inch trunk aerial are connected to the 8 pole cabinet switch (495).

# TYPE 48

## KEY SAFETY UNIT AND 21 VOLT WARNING CIRCUITS

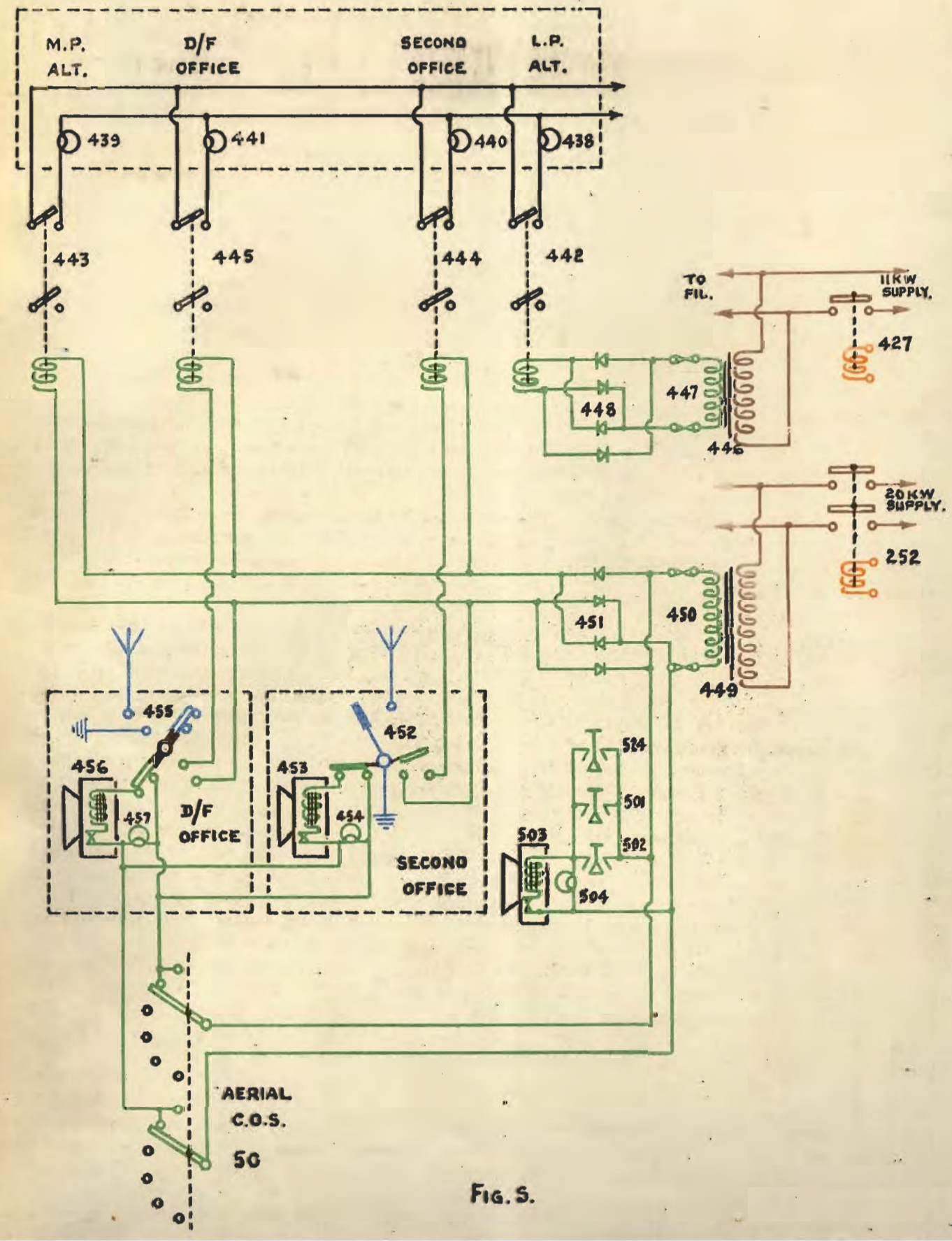


FIG. 5.

# KEY SAFETY UNIT AND 21 VOLT WARNING CIRCUITS

Key Safety Unit and 21 Volt Warning Circuits. (See figure s.)

In order to protect the receiving gear in the D/F and second offices when the main I/F set is transmitting a key safety unit and warning circuits are fitted.

The key safety unit is fitted in No.3 power board and consists of four magnetic switches (442)(443)(444)(445), two transformers (446)(449), fuses (447)(450) and two metal rectifiers (448)(451). The magnetic switches are connected in the key and indicating lamps circuits as described in the notes on D.C.Switches (13) and (15).

The low power magnetic switch (442) is operated by the 15 volts supply from a transformer (446) and metal rectifier (448). The primary of the transformer (446) is connected to the 11 kW A.C. supply and the magnetic switch (442) will close when the filament alternator is running and the filament switch (427) is made. One contact arm on the magnetic switch (442) completes the supply to an indicating lamp (438) in the C.R.P. marked "L.P. Alt."

The main power, second and D/F office magnetic switches (443)(444)(445) are operated by the 21 volts supply from a transformer (449) and metal rectifier (451). The primary of the transformer (449) is connected to the 30 kW A.C. supply. The main power magnetic switch (443) will close when the main alternator is running and the relay switch (252) is made. One contact arm on the magnetic switch(443) completes the supply to an indicating lamp(439) in the C.R.R.marked "M.P. Alt."

The warning circuit consists of loud sounding buzzers (453)(456)(503) and lamps(454)(457)(504) operated by the 21 volts A.C.supply from the transformer (449). The second and D/F offices are fitted with aerial safety switches (452) and (455) for earthing the aerials when the main I/F set is transmitting or the office is not in use. In the "receive" position the switches (452)(455) are connected as shown in figure s. and complete the 21 volt supply to the loud sounding buzzers (453)(456). When the main alternator is running and the relay switch (252) is made the second and D/F office operators are warned that transmission on the main I/F set is about to take place by the buzzers (453)(456) and lamps (454)(457). The warning lamps will burn as long as the relay switch (252) is made and the main alternator is running but the circuit to the buzzers (453)(456) is broken by the respective aerial switches (452)(455) when the operators earth their aerials.

In addition to breaking the circuit to the buzzers (453)(456) the aerial safety switches (452)(455) complete the supply to the bobbins of the second and D/F offices magnetic switches (444)(445). These switches (444)(445) light indicating lamps (440)(441) marked "Second Office" and "D/F Office" respectively in the C.R.P. The lamps (440)(441) indicate to the operator in the C.R.R. that the second and D/F office aerials are earthed and it is safe to transmit.

The supply to the warning circuit buzzers (453)(456) and lamps (454)(457) is completed when the main aerial C.O.S.(50) is set to L/F. It should be noted that the magnetic switches (444)(445) will operate and the indicating lamps (440)(441) will light when the aerials in the second and D/F offices are earthed by the aerial safety switches (452)(455) irrespective of the position of the main aerial C.O.S.(50), thus affording a permanent indication whenever the second and D/F office aerials are earthed.

A loud sounding buzzer (503) and lamp (504), fitted in the main W/T office, are operated by the supply from the transformer (449). Each of the removable covers on the H/F main and master panels and the safety cage gate is fitted with a safety gate switch (501)(502) or (524) which closes when the gate is open and completes the supply to the buzzer (503) and lamp (504). The operator is, therefore, warned if the relay switch (252) sticks "ON" when the gate is opened or the covers are not in place.