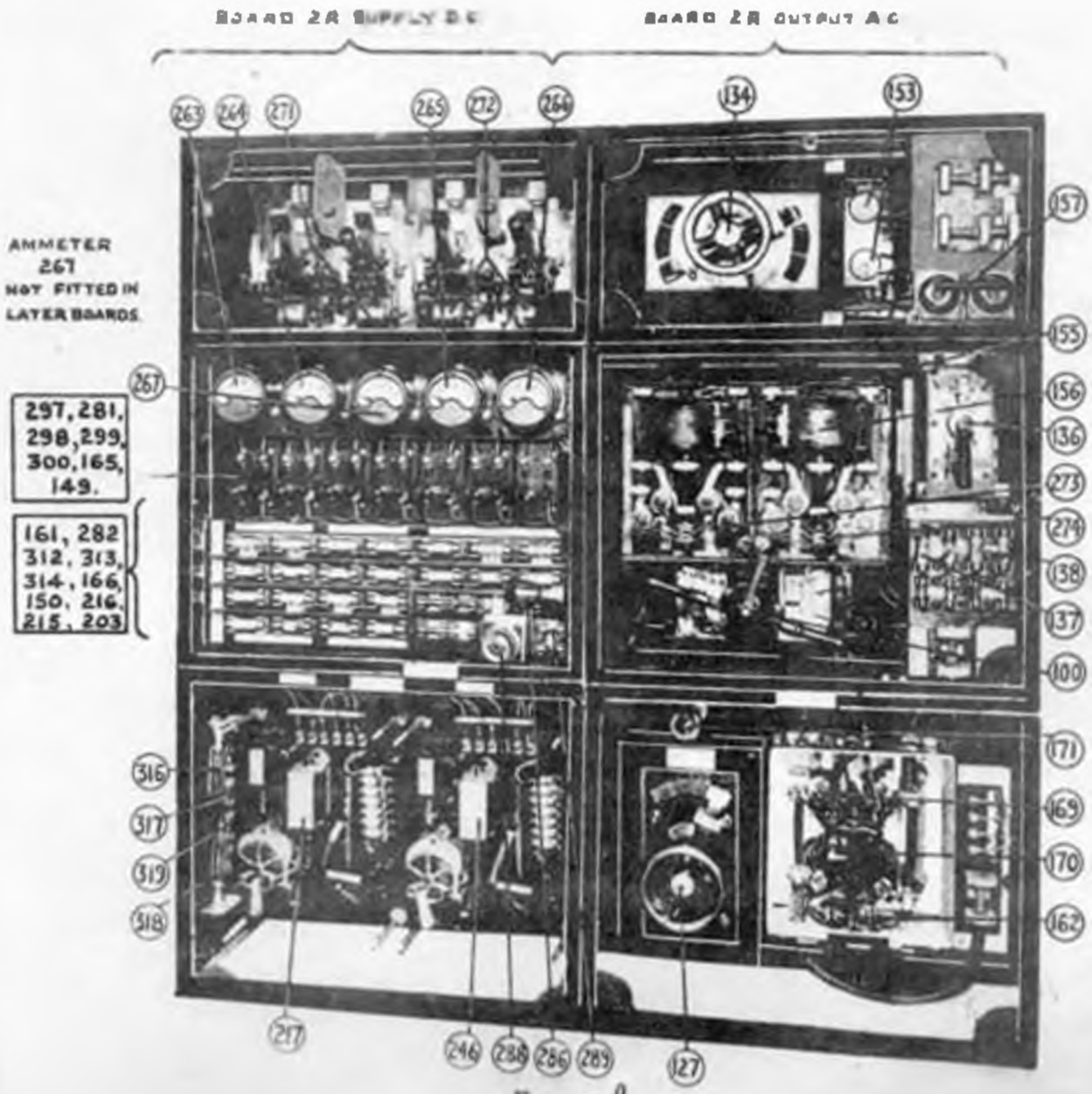
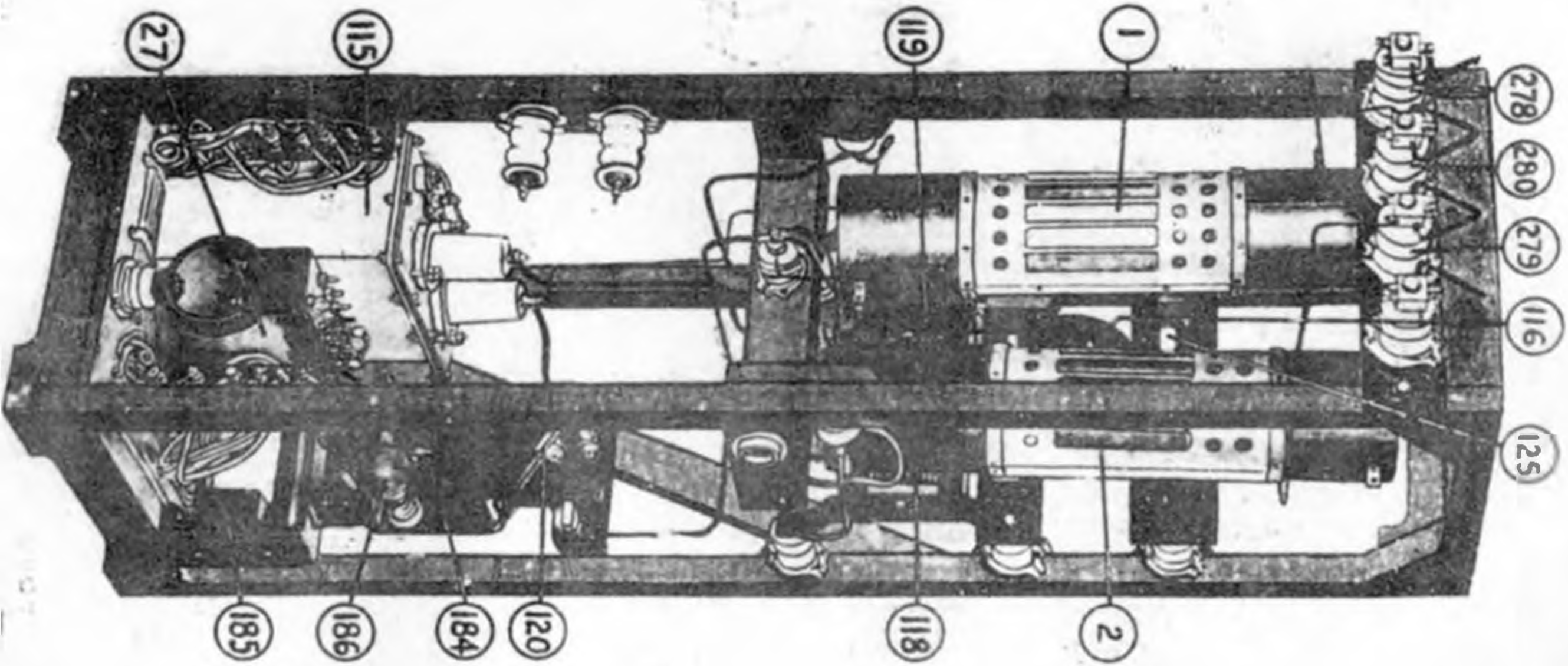
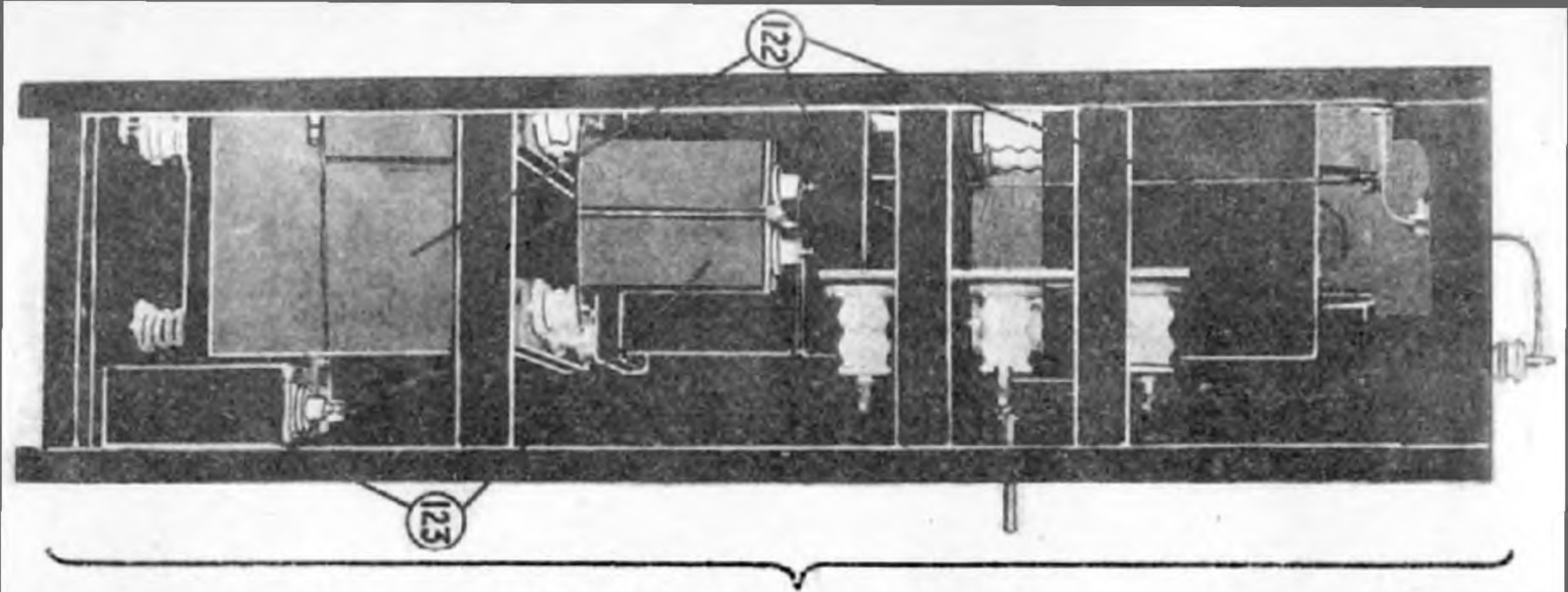

BOARD 2R SUPPLY D.C
BOARD 2R OUTPUT A.C
263
264
271
265
272
264
134
153
157
155
156
136
273
274
138
137
100
171
169
170
162
267
AMMETER
267
NOT FITTED IN
LATER BOARDS
297, 281,
298, 299,
300, 165,
149.
161, 282
312, 313,
314, 166,
150, 216,
215, 203
316
317
319
318
217
246
288
286
289
127

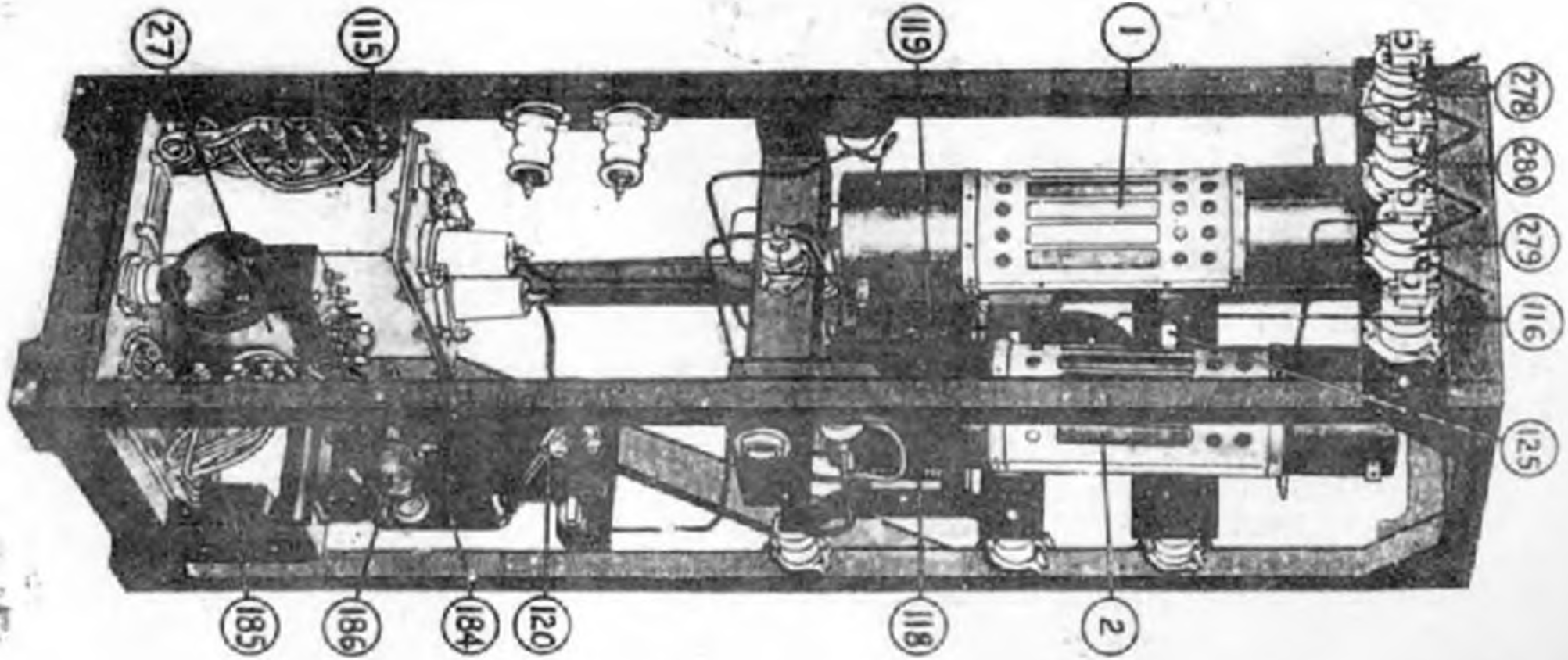
Fig. a.b.



PANEL 3R RECTIFYING



PANEL 3R SMOOTHING



PANEL 3R RECTIFYING

RL6

R90

TYPE 47

20 K.W. SUPPLY

VALVE POSITION

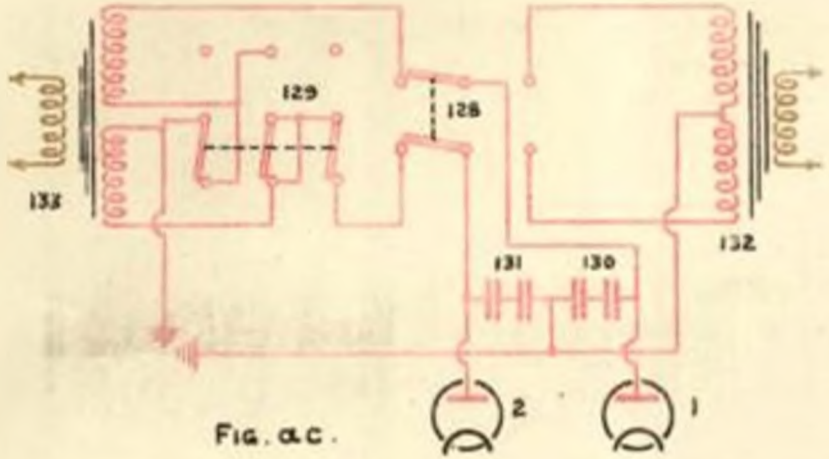


Fig. ac.

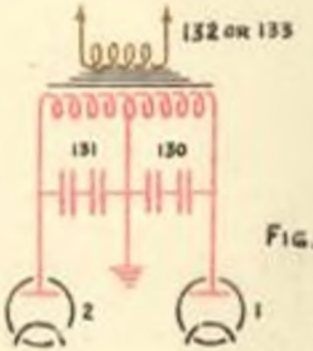


Fig. ad

SPARK POSITION

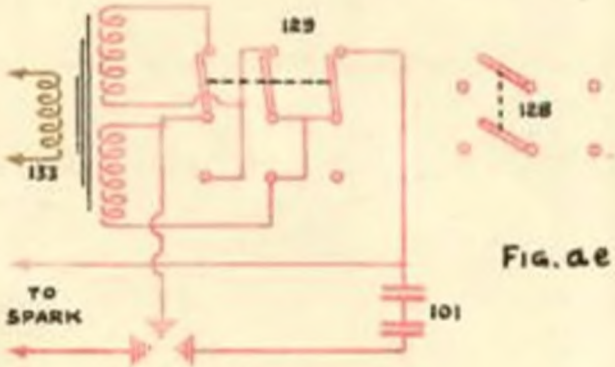


Fig. ae

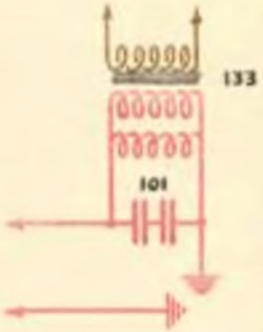


Fig af

RL21
~~R105~~

TYPE 47
BOARD 2R CONTROLLING

Board 2R Controlling is fitted inside the silent compartment. In addition to the "ON" and "OFF" pushes (261)(262)(268)(269)(270) for automatic starters and the switches (221)(222) for connecting in the reversing toasters, it contains the controlling switches for all D.C auxiliary and signalling circuits, and two D.P. switches (324)(325) as spares.

The supply for this Board is from the 220 volt busbars (201). A D.P. switch (165) controls the supply and the fuses (166) protect the circuit. The D.P. switch (166) is connected to a D.P. switch (167) fitted on the Board. This switch controls the supply to the six subsidiary single pole switches (176), (198), (193), (174), (196), (183) and a D.P. switch (168). The single pole switches control supplies to the following –

(176) Loop Aerial Send-Receive Switch.
(198) { H.T. and Filament C.O.S.
H/F and H.H/F D.C. Filament Switch.
H/F and H.H/F Aerial Switch.
(193) Transmit-Tryout Switch.
(174) H/F Send-Receive Switch.
(196) Low Power Rectifier Switch.
(183) { Main Filament Switch.
Main Rectifier Switch.

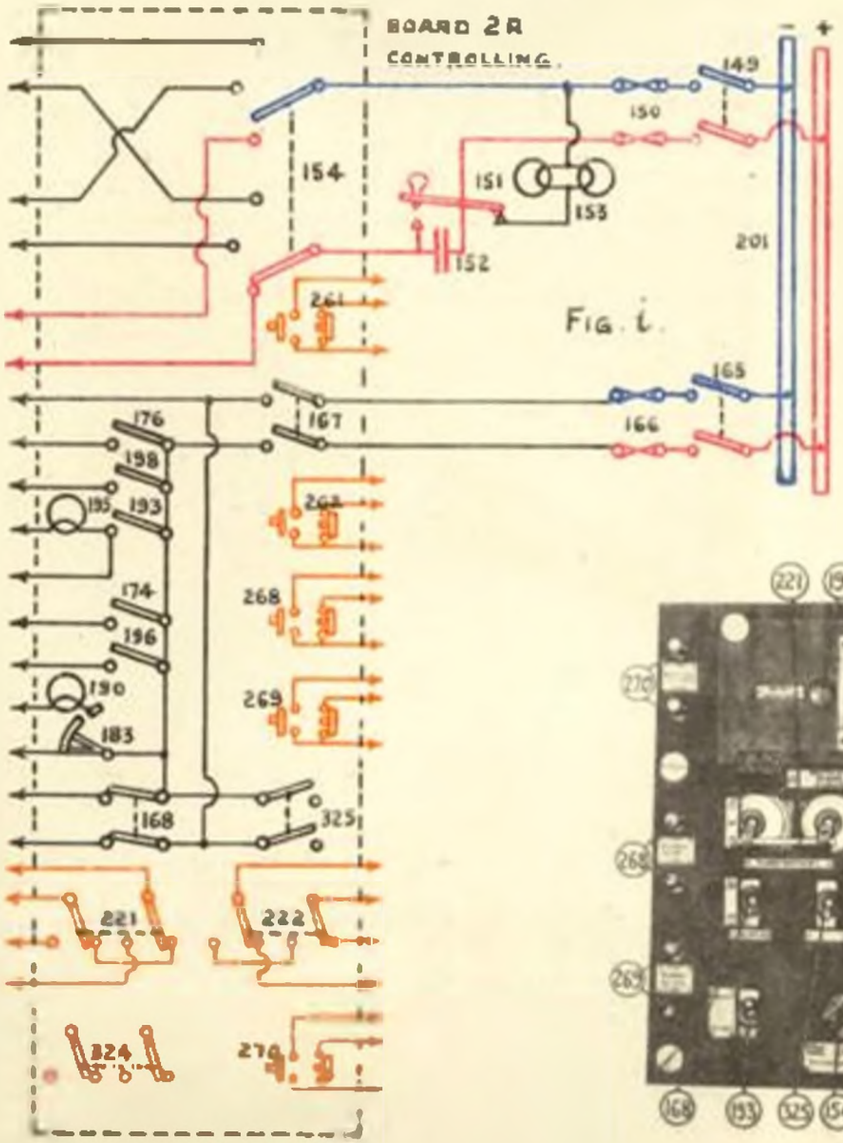


Fig. 1.

The D.P. switch (168) controls the supply to either blower (190) or (191) and the relay switch (198) (see figure k.). The two-pole 3-way switch (154) is the control switch of the D.C. signalling circuit. It connects the morse key (151) in the Main Magnetic Key, Low Power Magnetic Key or Transmitter 4R H.T. supply circuits (see figure a.).

One lamp (195) in the Transmit-Tryout switch circuit and one lamp (190) in the Filament and Main Rectifier switch circuits are inside the Board 2R Controlling.

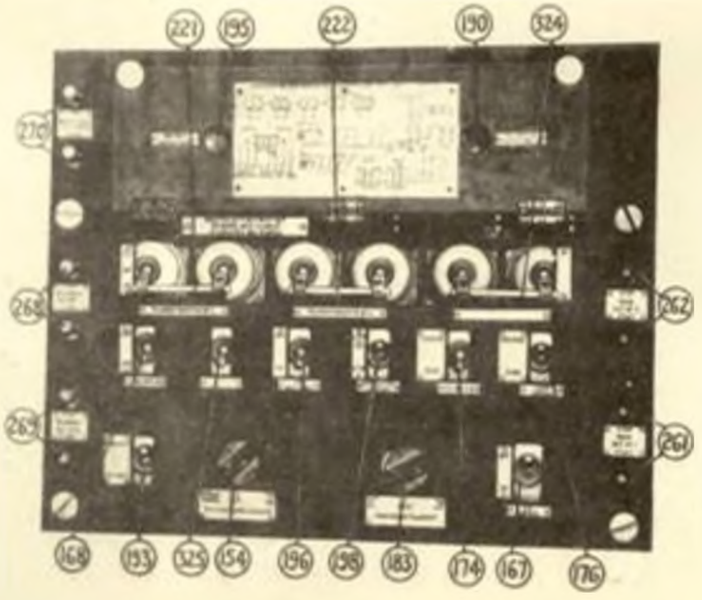


Fig. 1.a.

EQUIVALENT CIRCUITS

SERIES

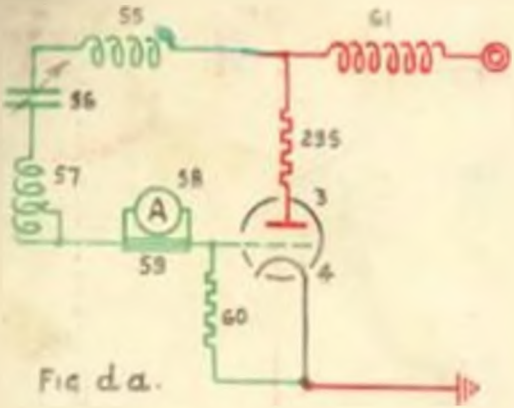


Fig d a.

PARALLEL

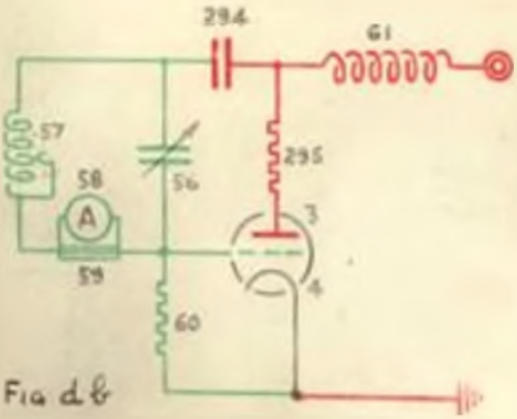


Fig d b

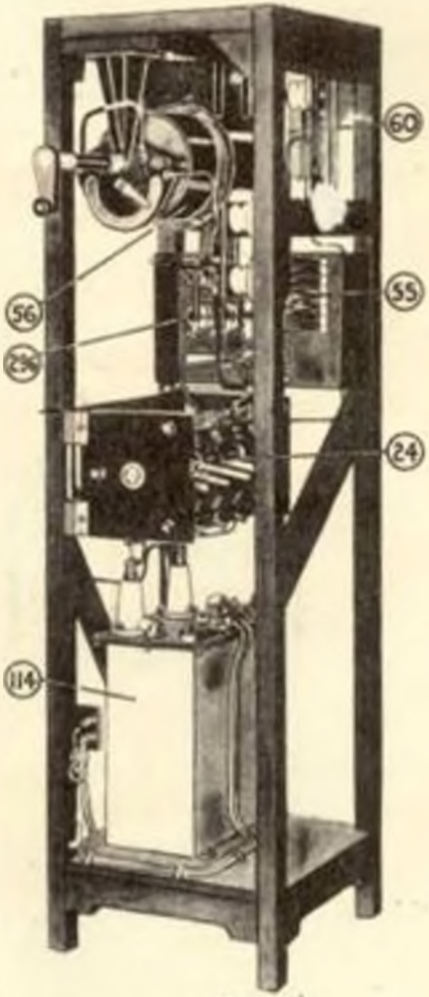


Fig dc

Type 3R HF Equivalent Circuit

frequencies taken 10,000 kc/s). A grid leak (74) consisting of three 30,000 ohm resistances in parallel is connected between the grid and the filament earth. It will be noted there is no variable capacity in this circuit

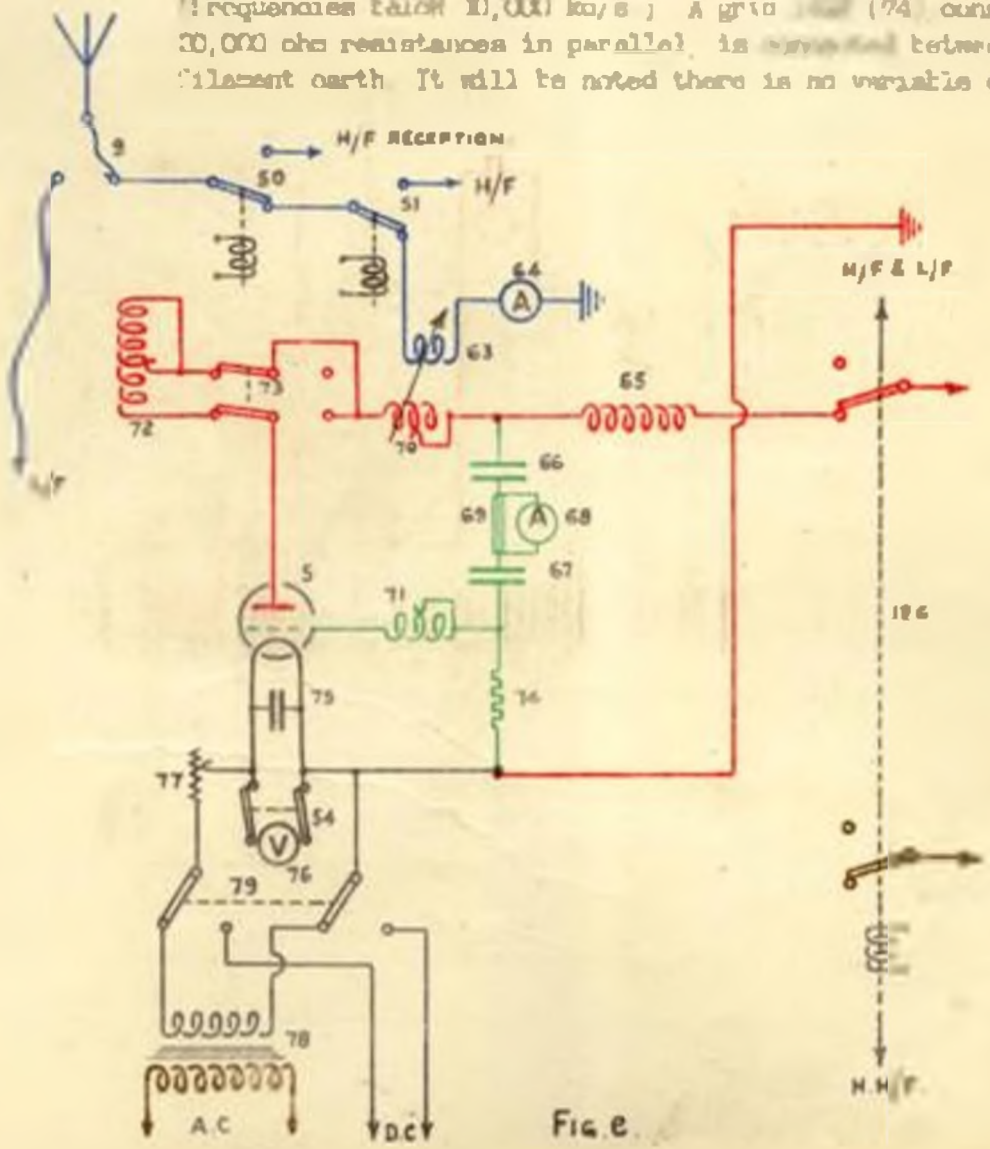


Fig. e

Type 3R HH/F Schematic [Ignore the printed text in this case]

EQUIVALENT CIRCUIT

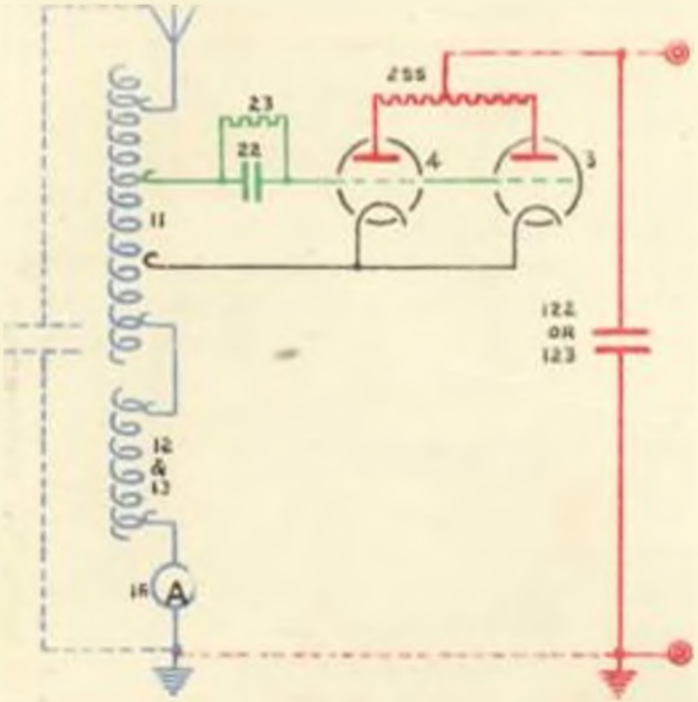


Fig. ca.

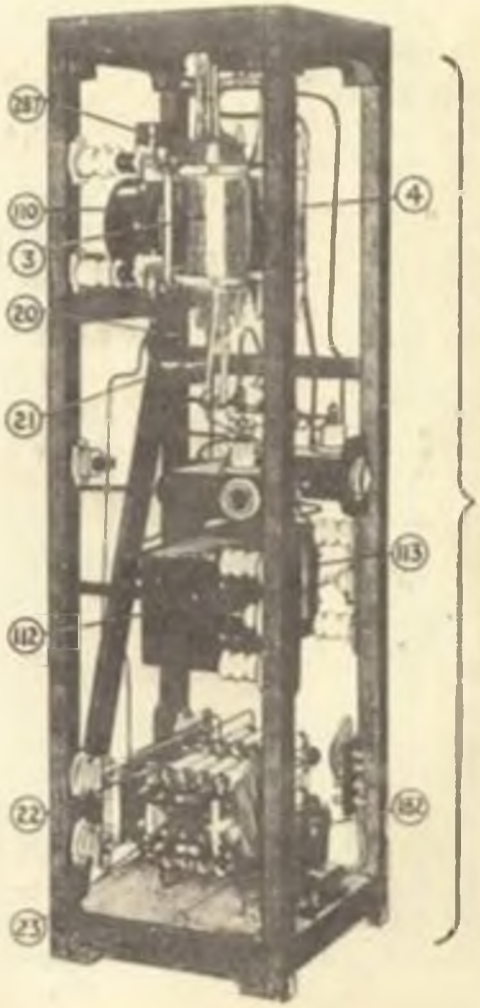


Fig. c b.

Type 3R L/F Equivalent Circuit

Type 3R Spark Transmitter

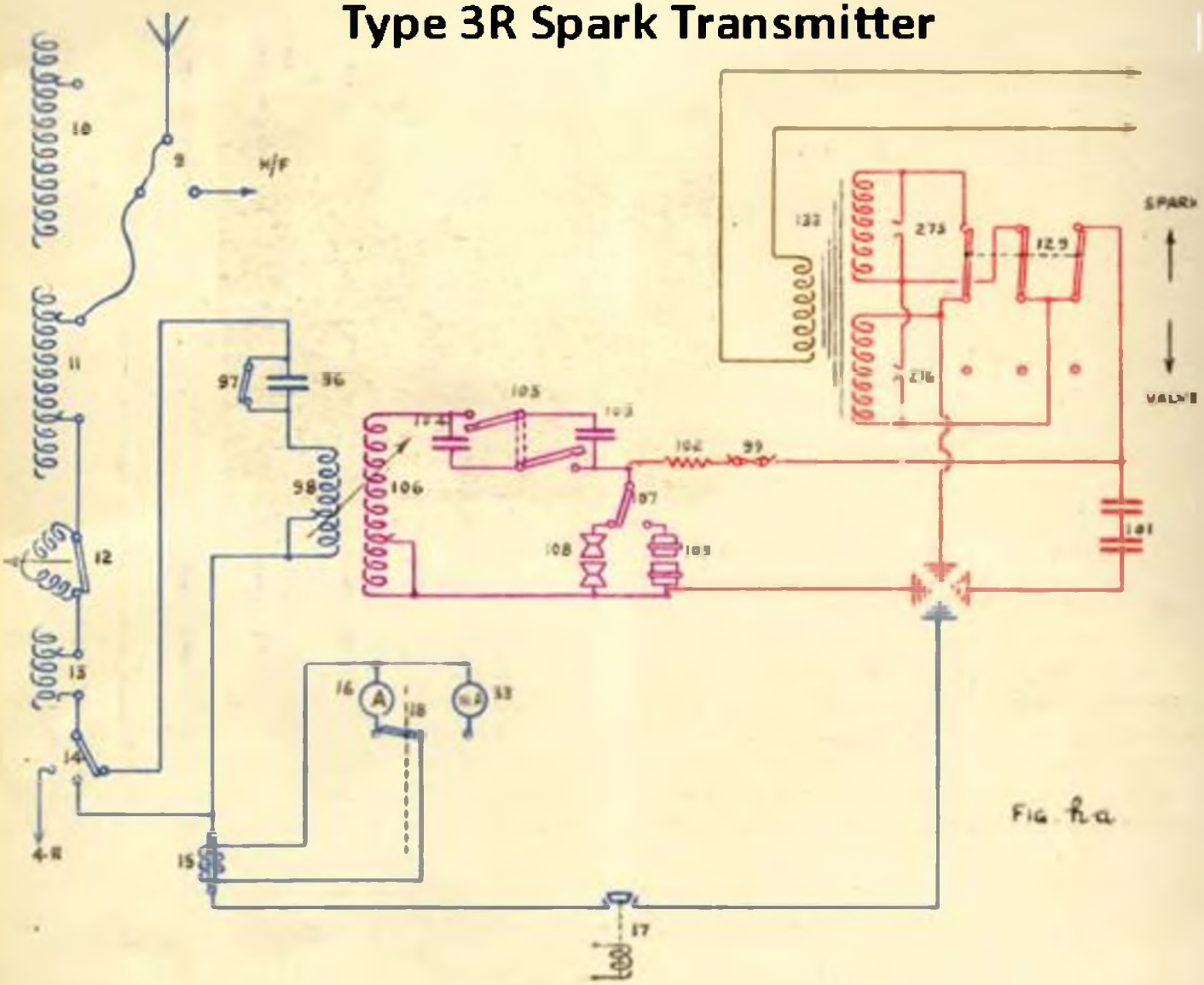


Fig 8a

CONDENSER COMBINATIONS

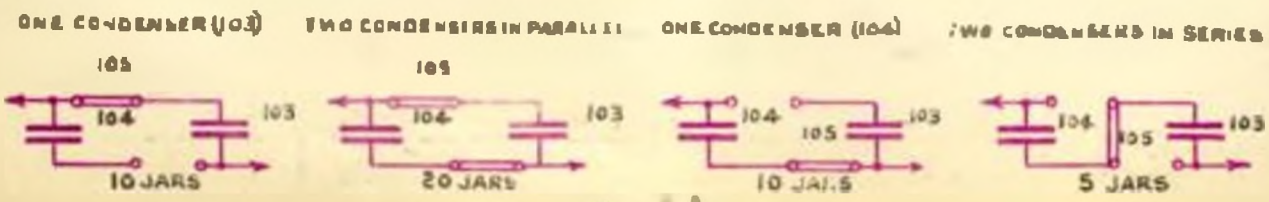


Fig 8b

TRANSMITTER 3R LOW POWER

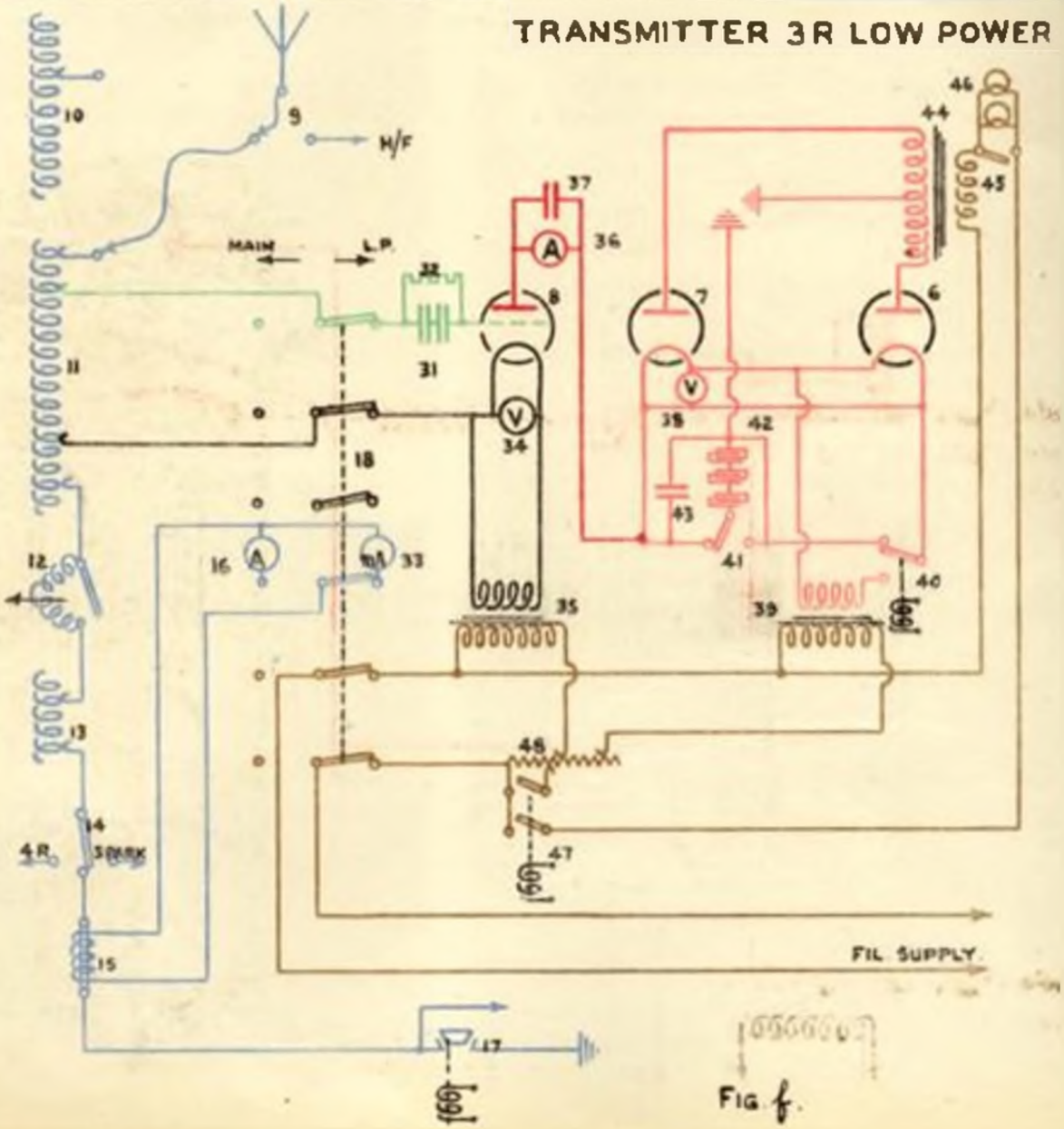


Fig. f.

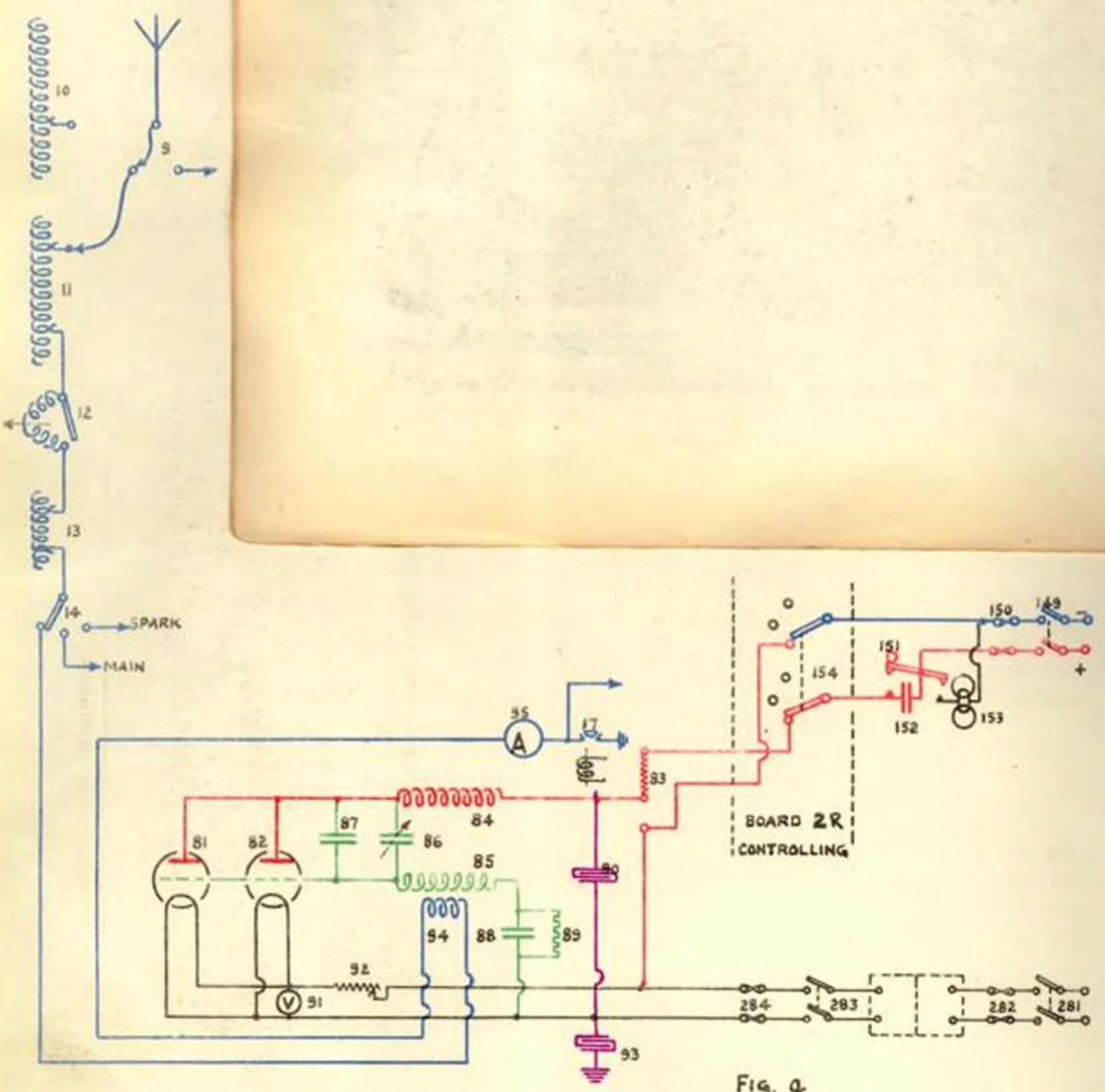

10
9
11
12
13
14
SPARK
MAIN
35
A
17
83
84
87
86
85
81
82
80
94
88
89
92
V
91
93
150
149
151
154
152
153
+
BOARD 2R
CONTROLLING
284
283
282
281

Fig. 9

EQUIVALENT CIRCUITS

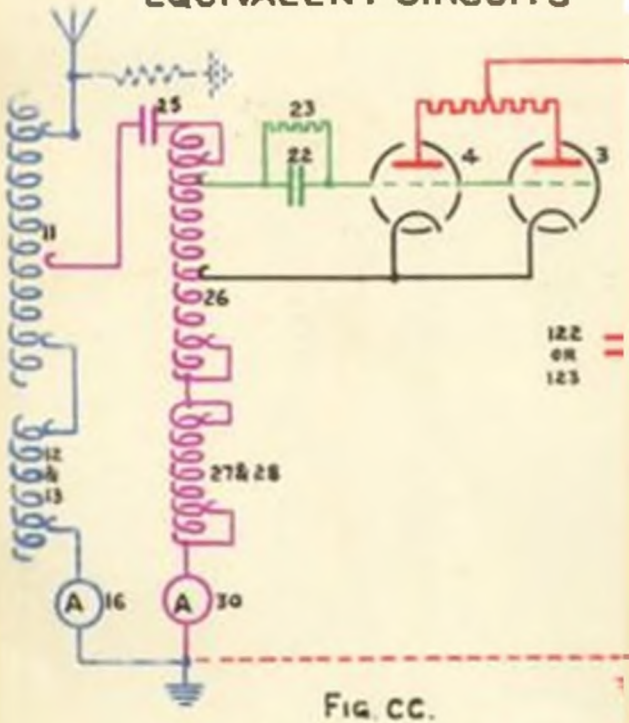


Fig. cc.

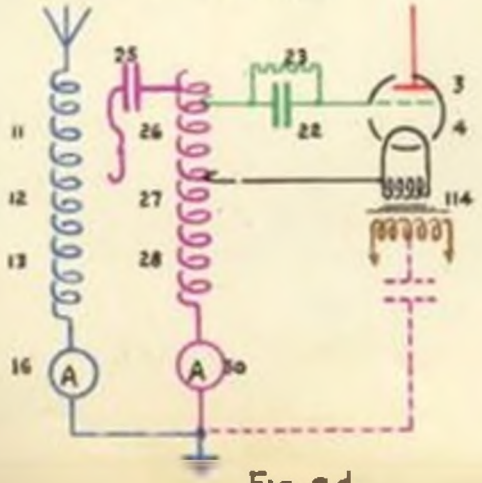


Fig. cd

the filament transformer liable to be damaged

Type 4R Training Transmitter

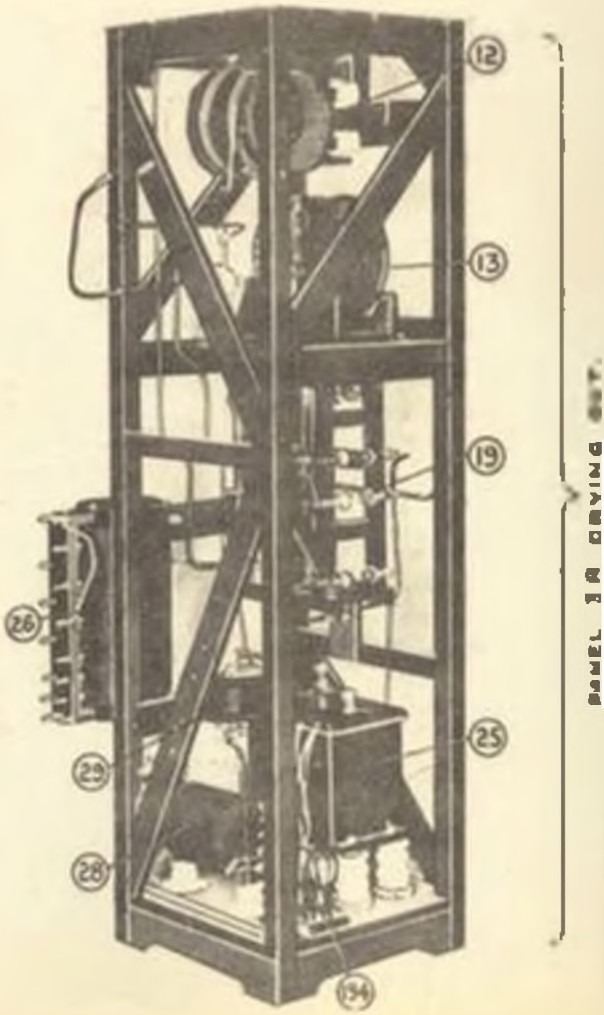


Fig 66.

TYPE 47

TRANSMITTER 3R L/F

RL 11

~~R95~~

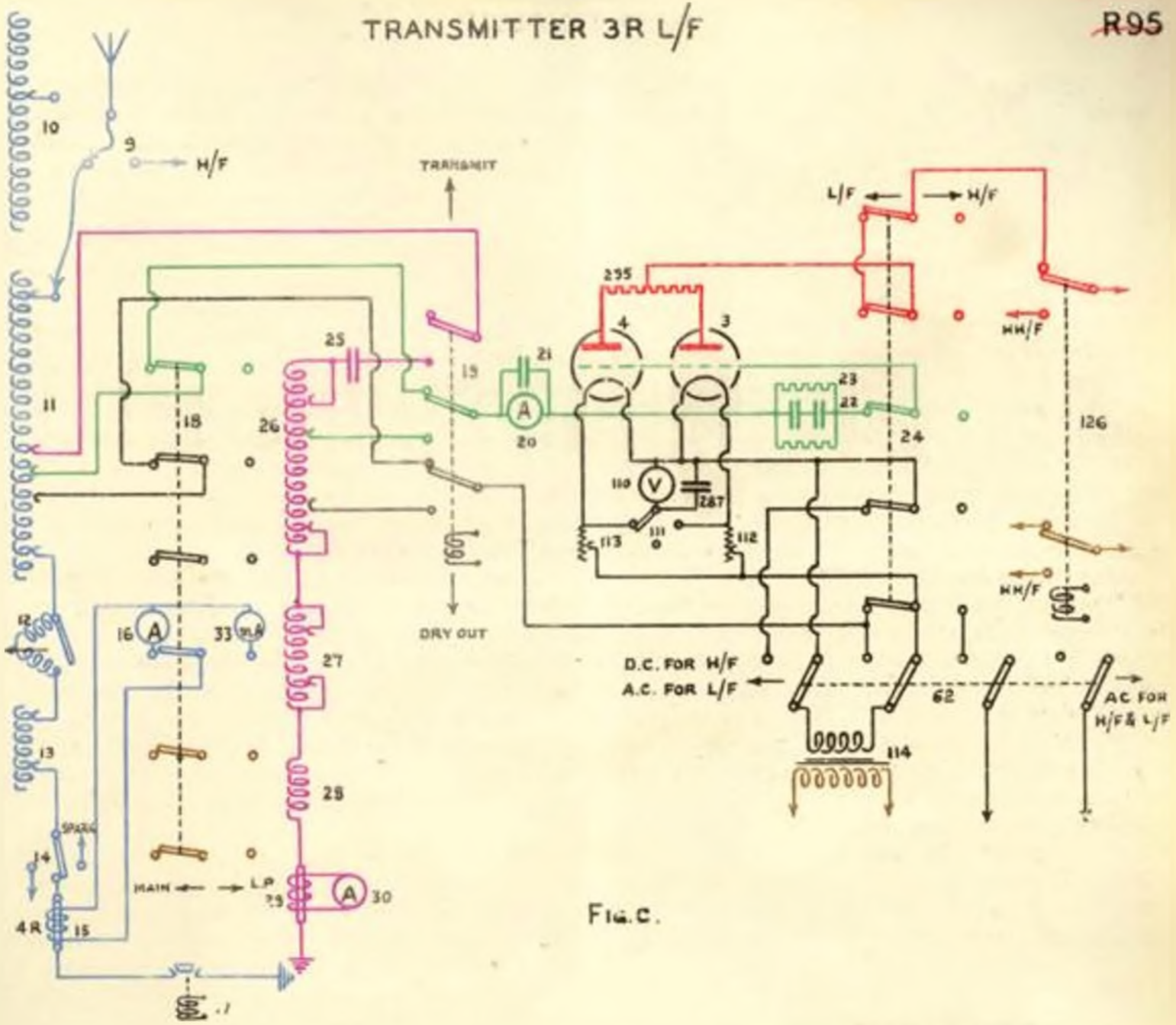
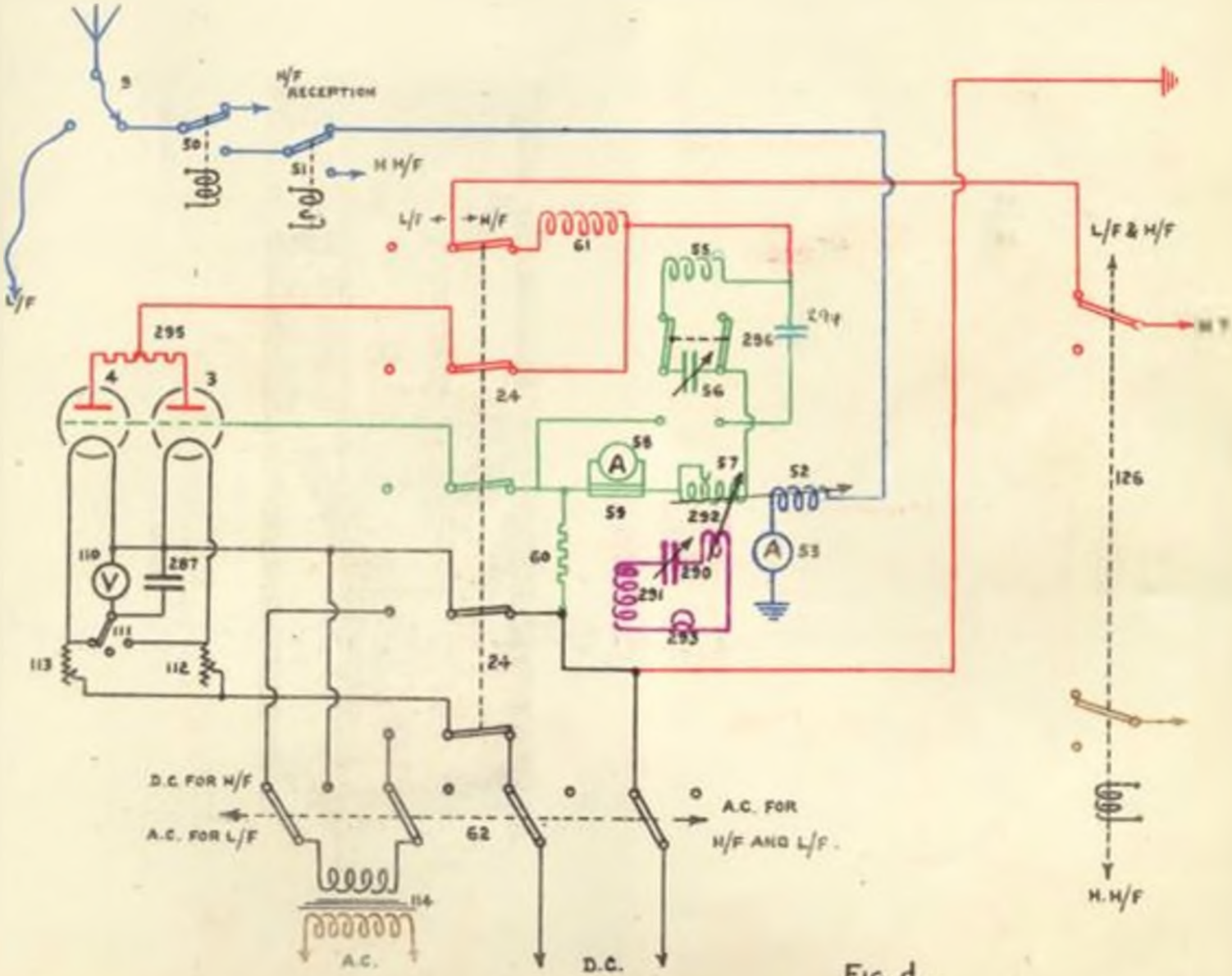


FIG. C.


H/F RECEPTION
H H/F
L/F
L/F & H/F
H.H/F
D.C. FOR H/F
A.C. FOR L/F
A.C. FOR H/F AND L/F.
A.C.
D.C.
Fig. d.

Type 3R H/F

(figure m.) The H/F – H.H/F aerial C.O.S. (51) is connected in parallel with both the above circuits and has a lamp (199) connected in series with the coil. In its normal position it connects the aerial to the H/F transmitter, and, when operated, connects the aerial to the H.T/F transmitter, (see figures d. and e.).

It will be noted that the door switches (188)(189)(190) complete all these circuits. The circuits are not required when using Main L/F or F/F with either A.C. or D.C. filament supplies as these transmitters use the same valves with links to enable A.C. or D.C. filament supply to be used when transmitting on H/F. The H.T. and filament C.O.S. (123) and H/F – H.H/F aerial C.O.S. (51) can be used without the H/F – H.H/F D.C. filament C.O.S. (140), which is only operated when D.C. is required for the filaments of the H.T/F transmitter valve.

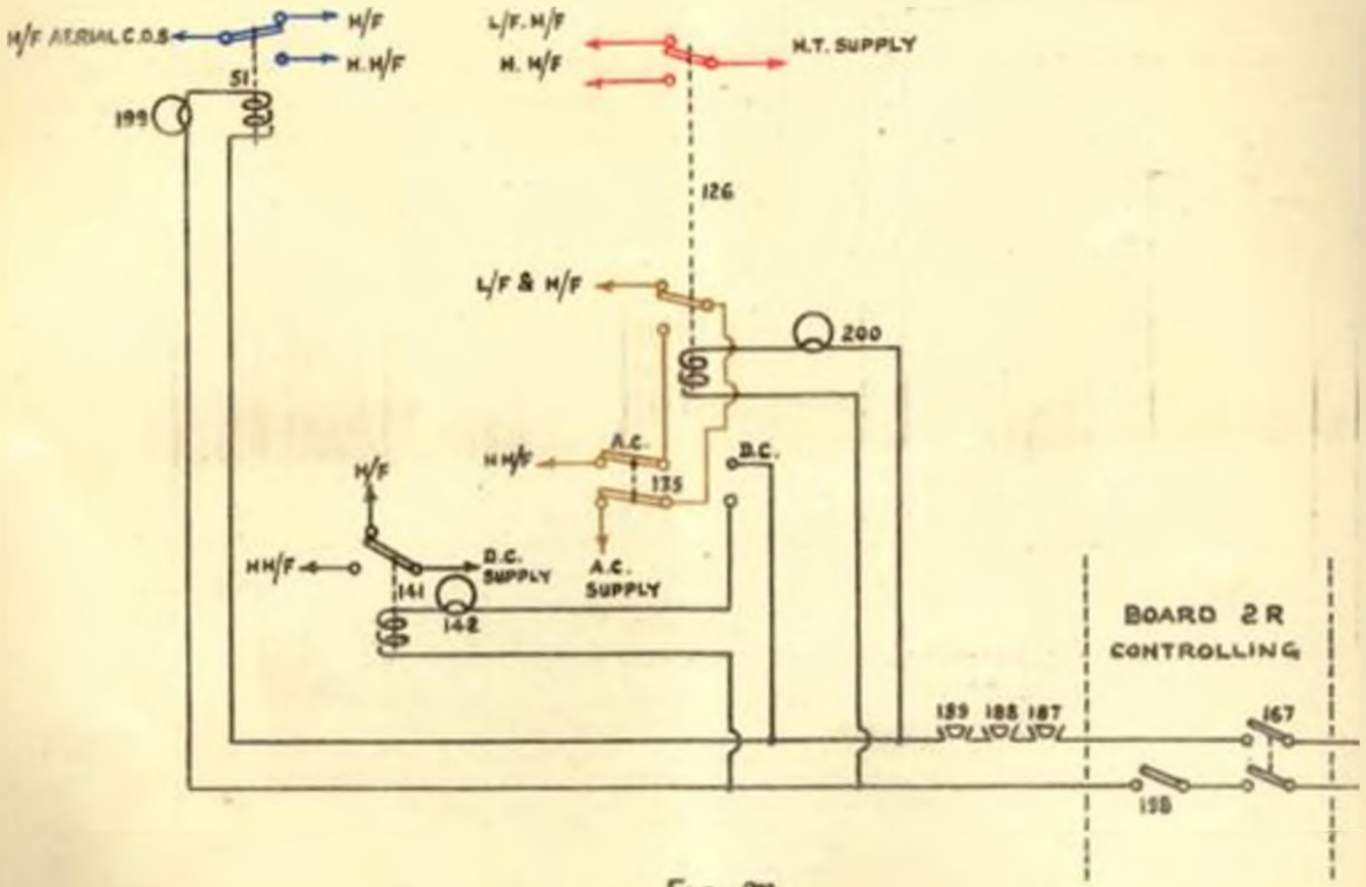


Fig. m.

H/F – H.H/F Send Receive Switch Circuit (figure n.). The H/F – H.H/F send receive switch circuit consists of two lamps (175) in parallel connected in series with the bottin of the switch (50). The supply is taken from the Board 2F Controlling and is controlled by a single pole switch (174) marked "SR" and "SR". This switch connects the supply to the above circuit, the return of which is to the common negative of the D C Supply switch (177). It should be noted the cage door switches are not in this circuit.

Normally the send-receive switch (50) connects the main aerial to the H/F receiving gear providing the flexible aerial link (9) is made to the H/F position. When operated it connects the main aerial to the H/F – H.H/F aerial C.O.S (51) which in turn connects the aerial to the H/F or H.H/F transmitter (see figures d. and e.).

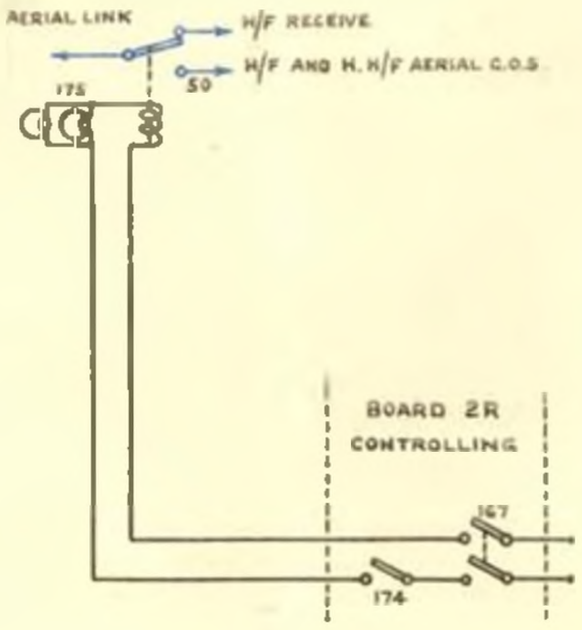


Fig n.

Transmit-Dryout Switch Circuit (figure o.) The transmit-dryout switch circuit is supplied from the Board 7F Controlling, and is controlled by a single pole switch (193) marked "Transmit-Dryout". This switch connects the supply through two resistance lamps (194) in parallel, and the bottin of the switch, to the cage door switches (187)(188), (189). When closed, the cage door switches complete the circuit to the common negative supply of the D C supply switch (177). A pilot lamp (195), fitted on Board 7F Controlling, is connected in parallel with the resistance lamps (194) as an indicating lamp.

The switch (19) in its normal position connects the grid and filament taps of the Transmitter 7F L/F to the aerial coil (see figure o.). When operated it connects the grid and filament taps of the Transmitter 7F L/F to the dryout tapping coil, and the aerial tap of the dryout tapping coil to the aerial.

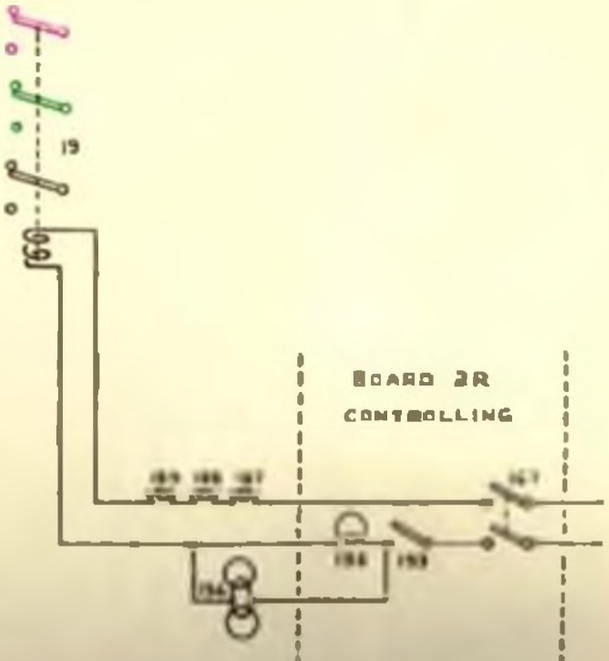


Fig o.

Alarm Circuit (figure q.) This circuit is supplied direct from the 220 volt bunkers through a pair of fuses (161). It is not controlled by any local switch in the W/T office. This ensures that power is supplied to the circuit as soon as the ring main C.O.B. is made.

The alarm circuit is a 220 volt bell circuit, with two breaks formed by a single pole contact (162) of the relay switch (139) and the three gate switches (163)(222)(323).

This circuit is fitted to give warning that, if either safety door is opened, the set may yet be dangerous to handle should the relay switch remain made, in spite of its bobbin supply being broken. If the relay switch (139) is made the single pole contact (162) completes a circuit through the bell (164) to the cage door switches (163)(222)(323). These switches are connected in parallel (see figure j.) and close when the door is opened, therefore if a safety door is opened while the relay switch is made the bell or alarm circuit is completed.

Loop Aerial Switch Circuit (Figure r.) The send-receive loop aerial switch (172) circuit is supplied from Board 2R Controlling, and is controlled by a single pole switch (176) marked "Loop Aerial". The circuit consists of two resistance lamps (177) in parallel, connected in series with the bobbin of the send receive switch (173). The loop aerial switch (176) completes a circuit through the above to the common negative supply of the D.C. supply switch (167).

In the normal position two contacts of the send-receive switch are made and one broken. The two which are made complete the loop aerial circuit to the receiving gear. The one which is broken breaks the bobbin circuit of the relay switch (139) (see figure k.). When the send-receive switch is operated two contacts break and one makes. The former disconnect the loop aerial circuit from the receiving gear and the latter completes the bobbin circuit of the relay switch. This ensures the loop aerial is disconnected from the receiving gear before the main transmitters can be used.

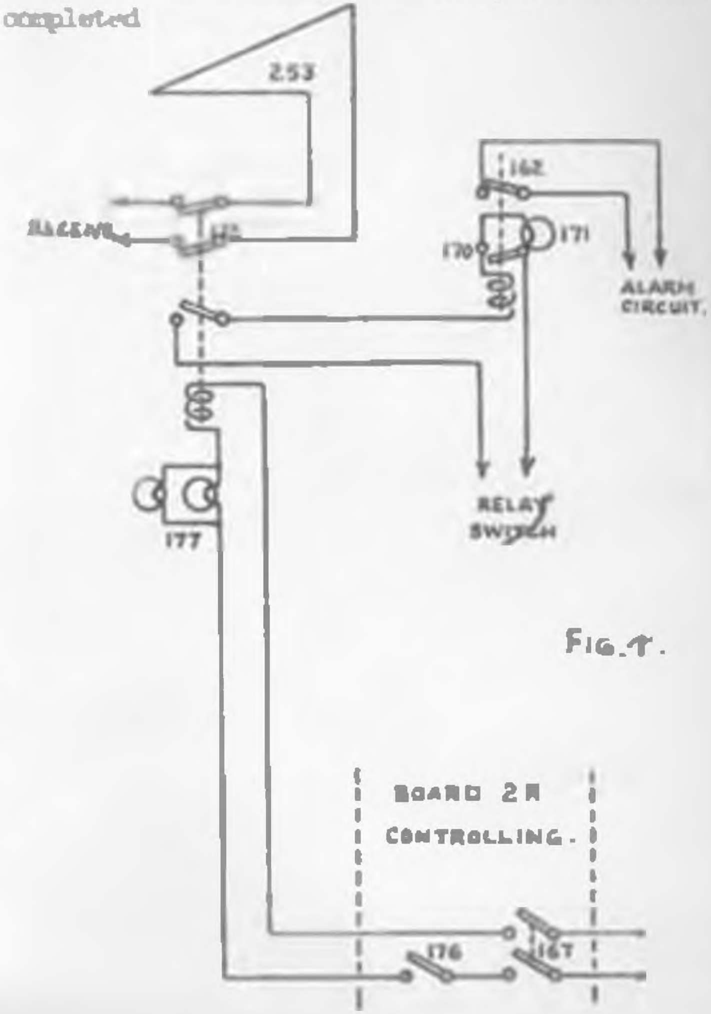
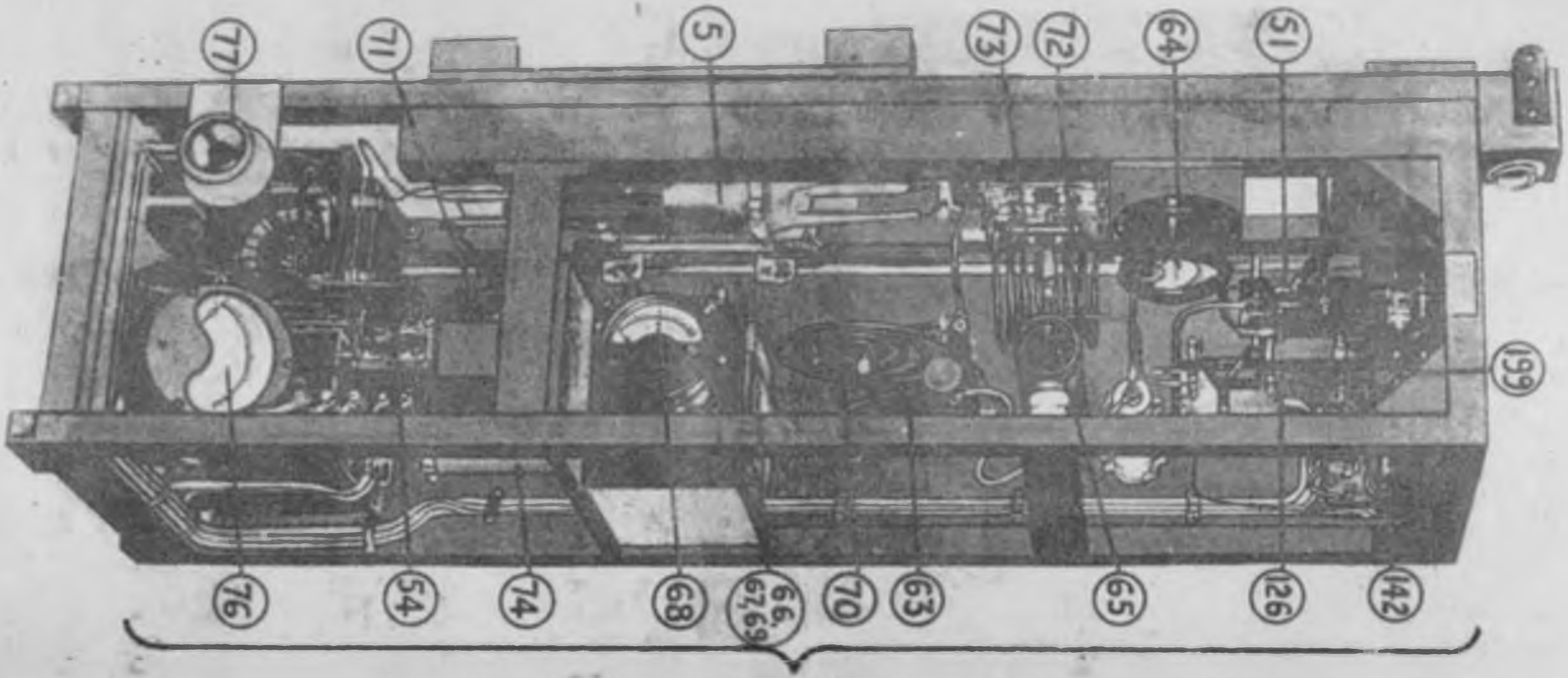
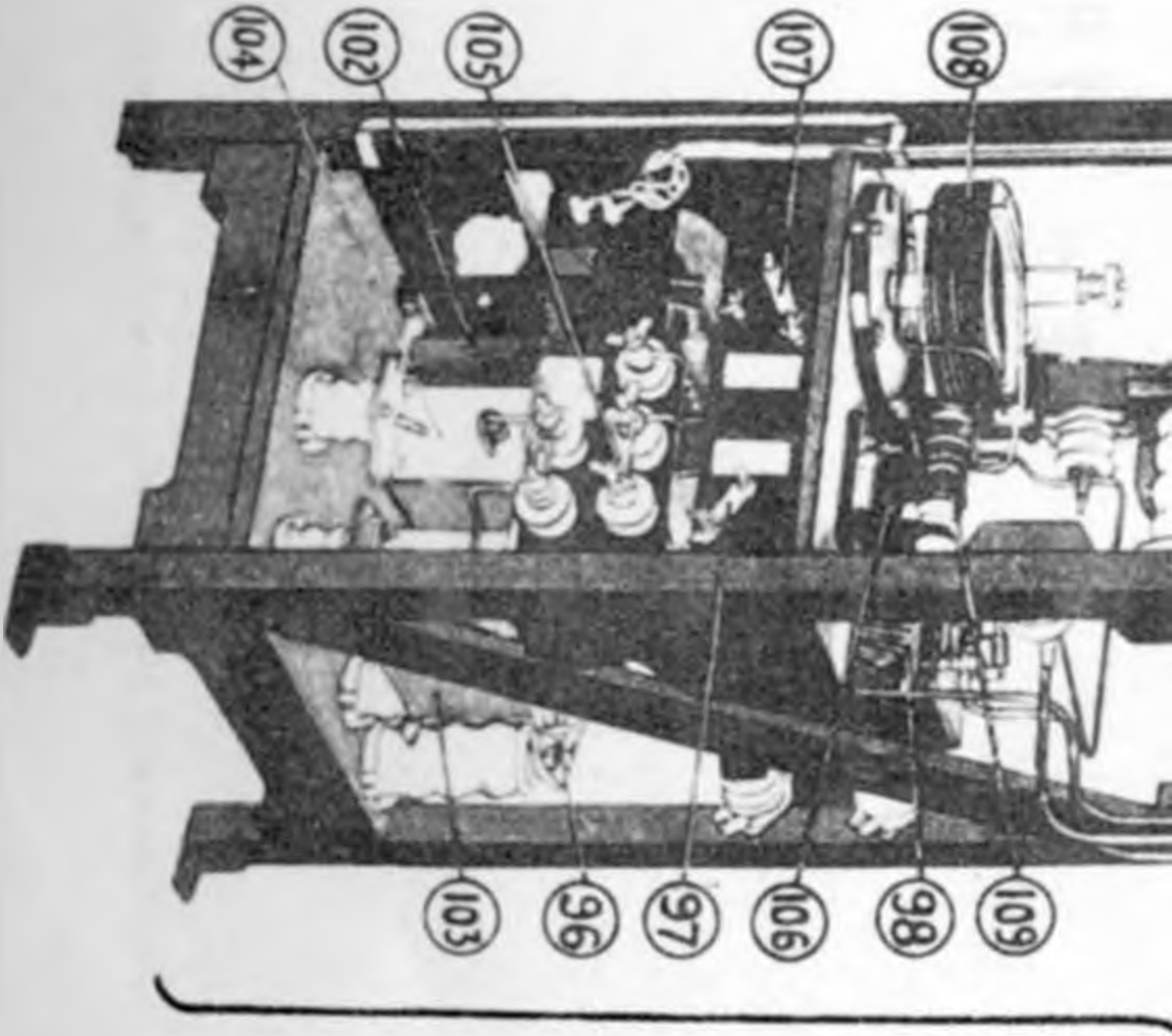


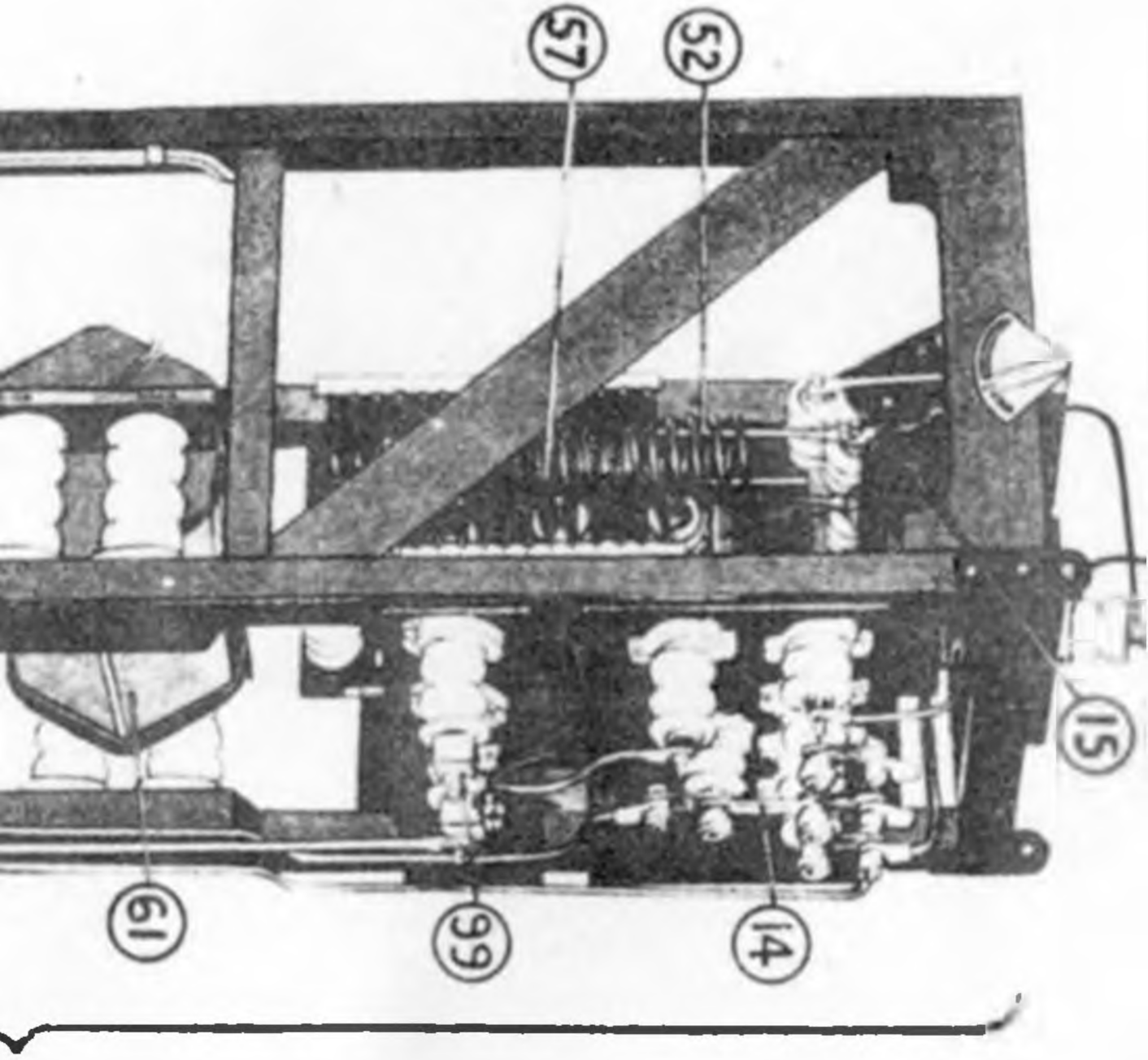
FIG. r.



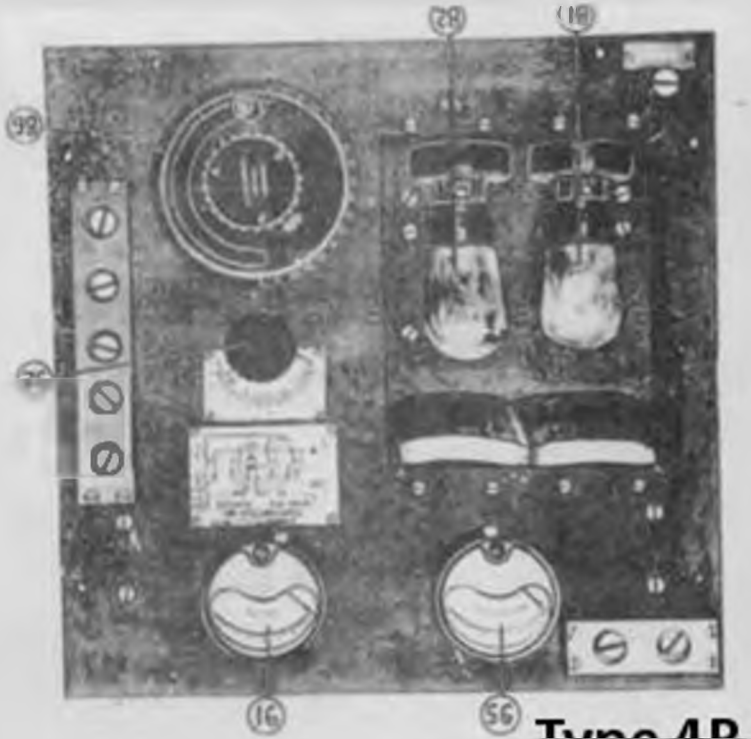
PANEL 3R SHORT WAVE HIGH FREQUENCIES.

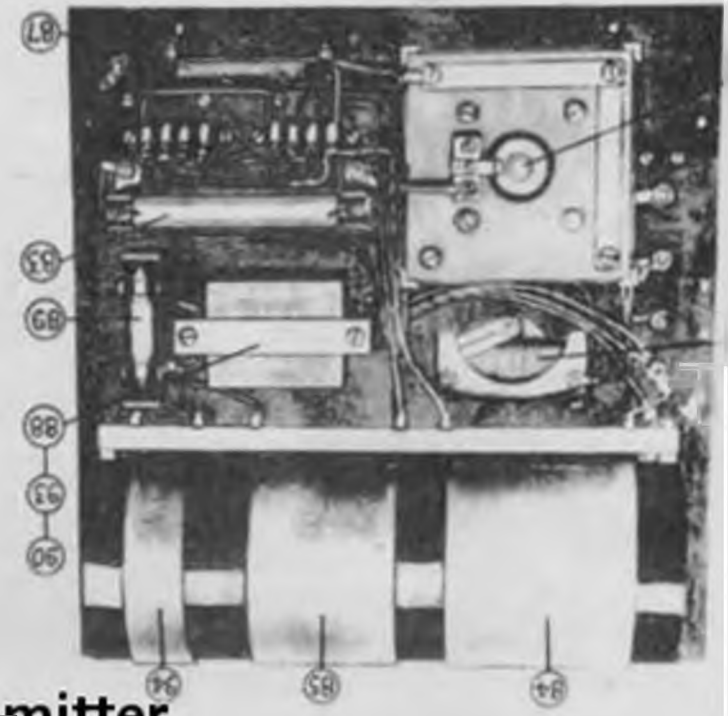


PANEL 3 R



SPARK





Type 4R Transmitter

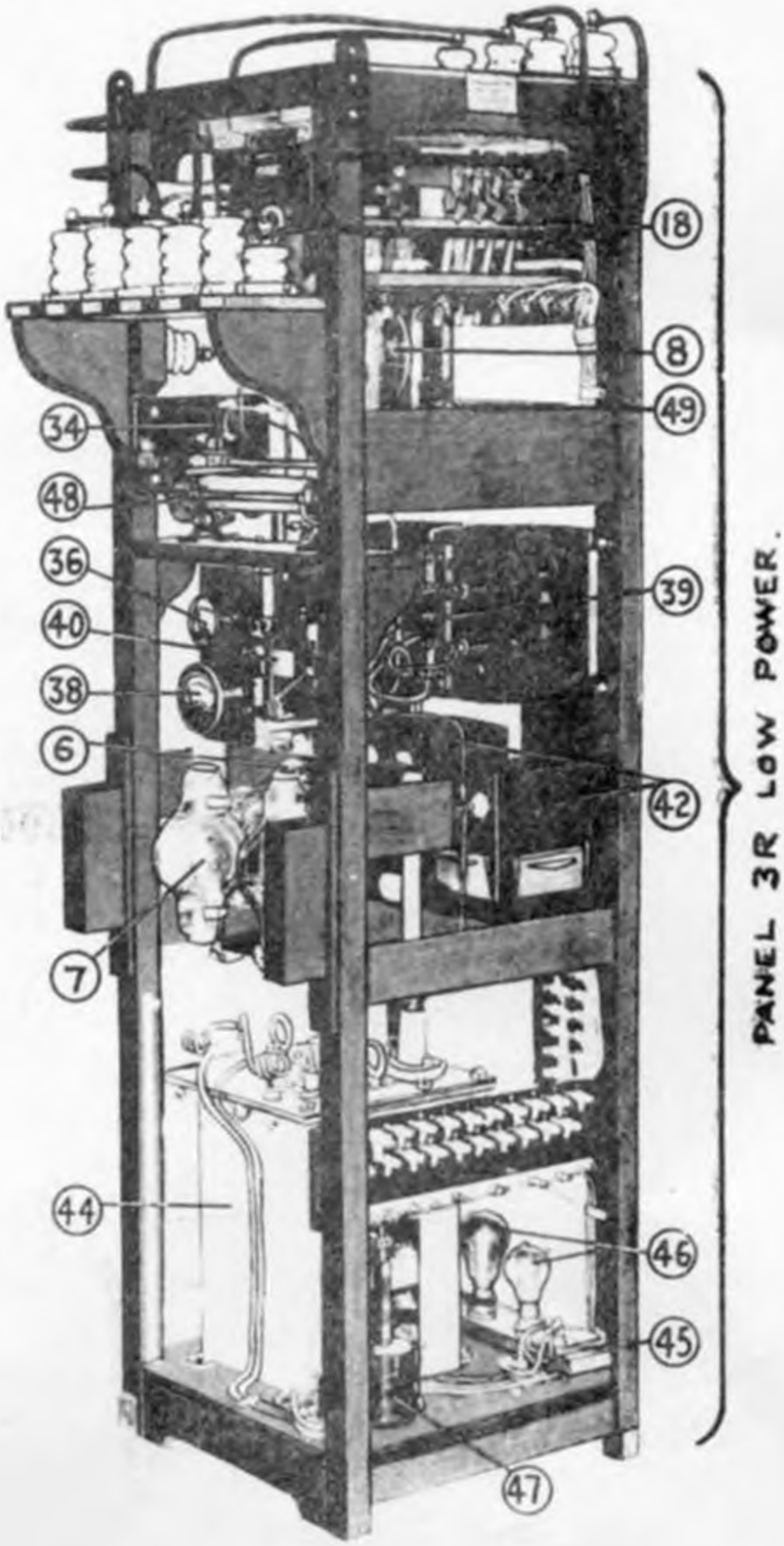
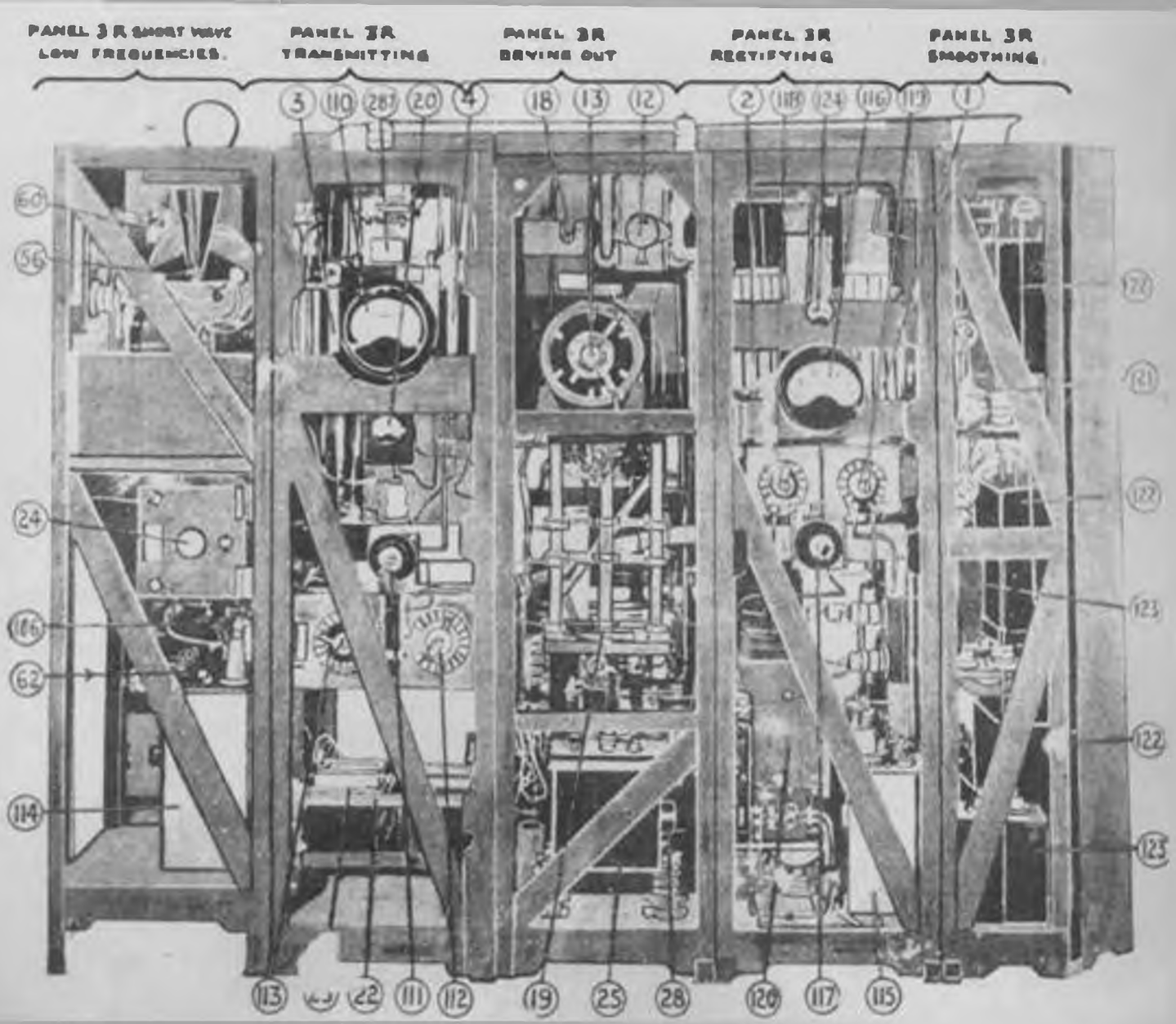
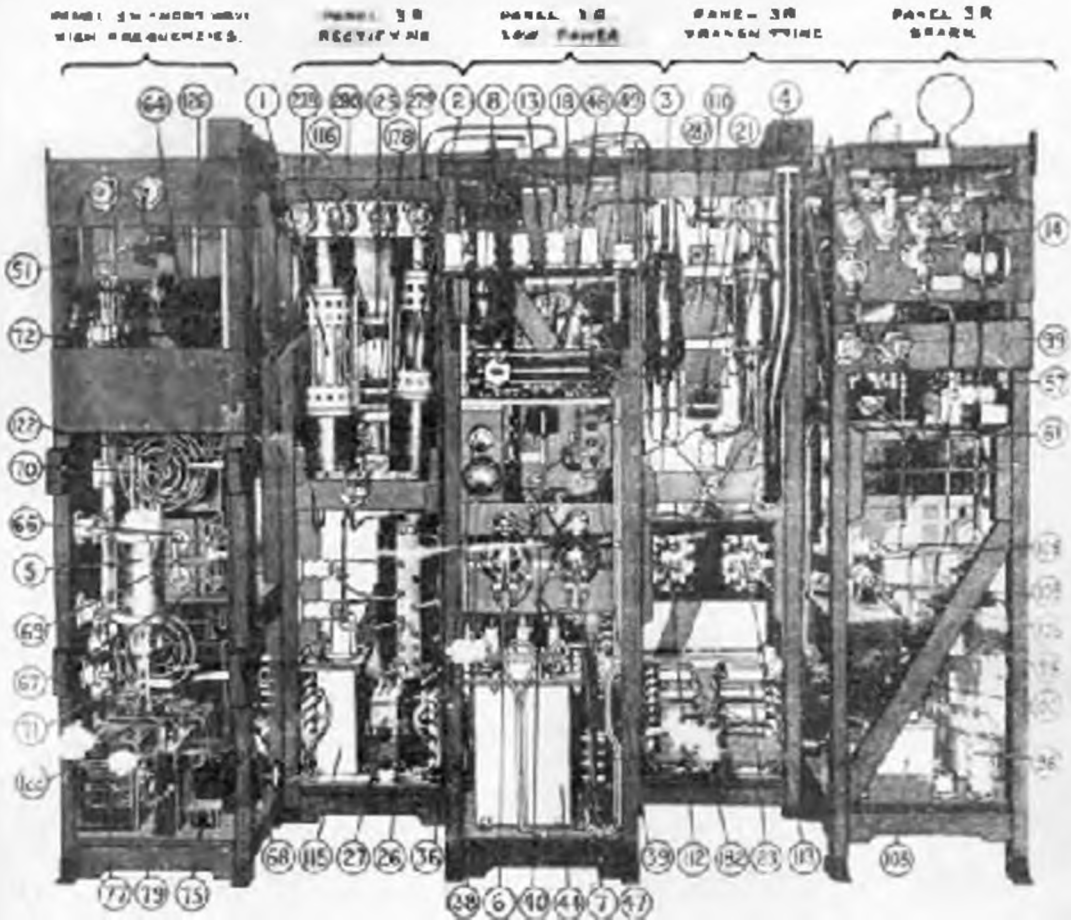


Fig. 5a.

Complete Type 47 transmitter


PANEL 3R SHORT WAVE LOW FREQUENCIES.
PANEL 3R TRANSMITTING
PANEL 3R DRIVING OUT
PANEL 3R RECTIFYING
PANEL 3R SMOOTHING
3
110
28
20
4
18
13
12
2
118
124
116
119
1
60
56
24
116
62
114
126
121
127
123
122
125
113
22
111
112
19
25
28
120
117
115

TYPE 47


PANEL 3R
RECEIVING
PANEL 3R
LOW POWER
PANEL 3R
TRANSMITTING
PANEL 3R
SPARK