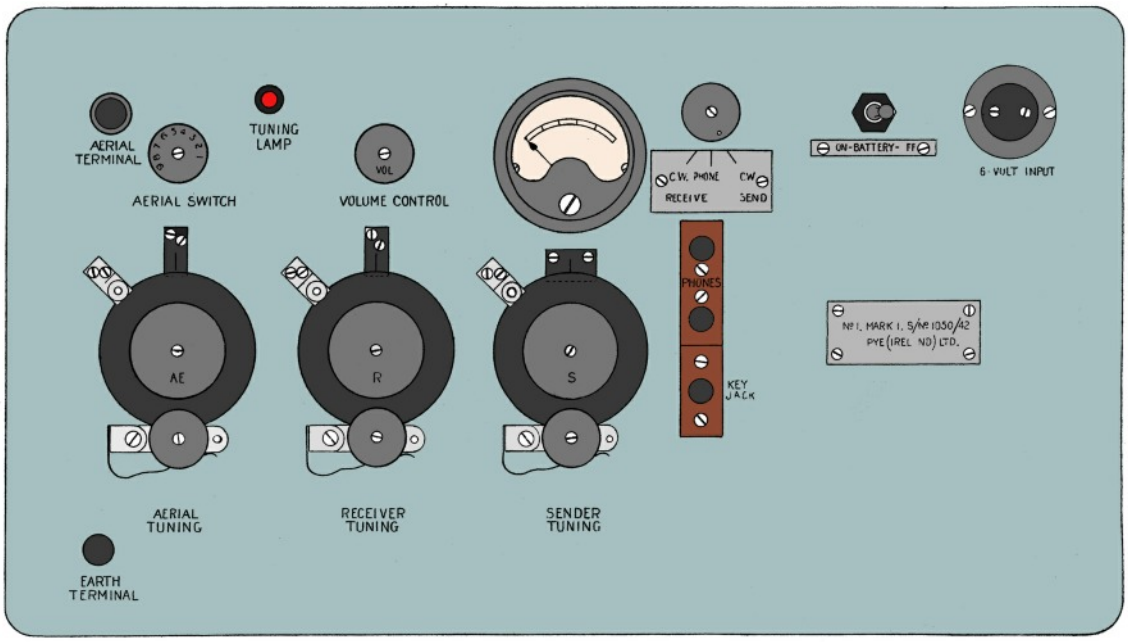
Volume 2 AMENDMENT No. 2

Date of issue: July 2018/revised June 2019.

After the publication of 'Wireless for the Warrior' Volume 3 'Wireless Sets of WW2', a small number of minor (typing) errors and incorrect data was spotted. Corrections, additional photos and newly found items are published in 'Volume 2 Amendments'. If printed on A4 paper, cut away circa 7mm from the bottom and side of the sheet. The prepared sheets will fit snugly between the inside cover and dust cover flap. It is further recommended (when applicable) to amend the text corrections in the book with e.g. a (red) pencil or a fine-liner.

Wireless Set No. 1 MARK 1



Front panel view of Wireless Set No. 1 MARK 1.

DATA SUMMARY

Organisation: Not yet confirmed but believed Irish Defence Forces.

Design/Manufacturer: Pye (Ireland) Ltd.

Year of Introduction: Probably 1942.

Purpose: Army wireless communication, possibly also used for coastal observation roles.

Receiver:

Circuit features: RF stage, mixer/LO, IF stage, AF output/det/avc/BFO. AM and CW. IF 465kHz.

Frequency coverage: 1.9-5MHz.

Transmitter:

Circuit features: Master oscillator, RF power ampl., CW.

Frequency coverage: 1.9-4.9MHz.

RF output: 6W.

Aerial: Rod and wire aerials. The aerial tuning circuit was common to the receiver and transmitter.

Valves: Transmitter 6V6G and 6L6G; receiver 6K7 (2x), 6K8 and 6V7G. Rectifier 6W5G.

Power supply: 6V LT and 310V HT.
HT was derived from a non-synchronous vibrator power unit with a full wave valve rectifier. 6V DC input.

Consumption: Receiver: 6¼ - 6¾ A; Transmitter: 7½ - 8A.

Size (in): Height 11½, length 19½, width 12.

Weight: 39lbs 10ozs. (Set in case).

Accessories: Morse key, headphones, aerial and counterpoise, 6V power connector.

REMARKS

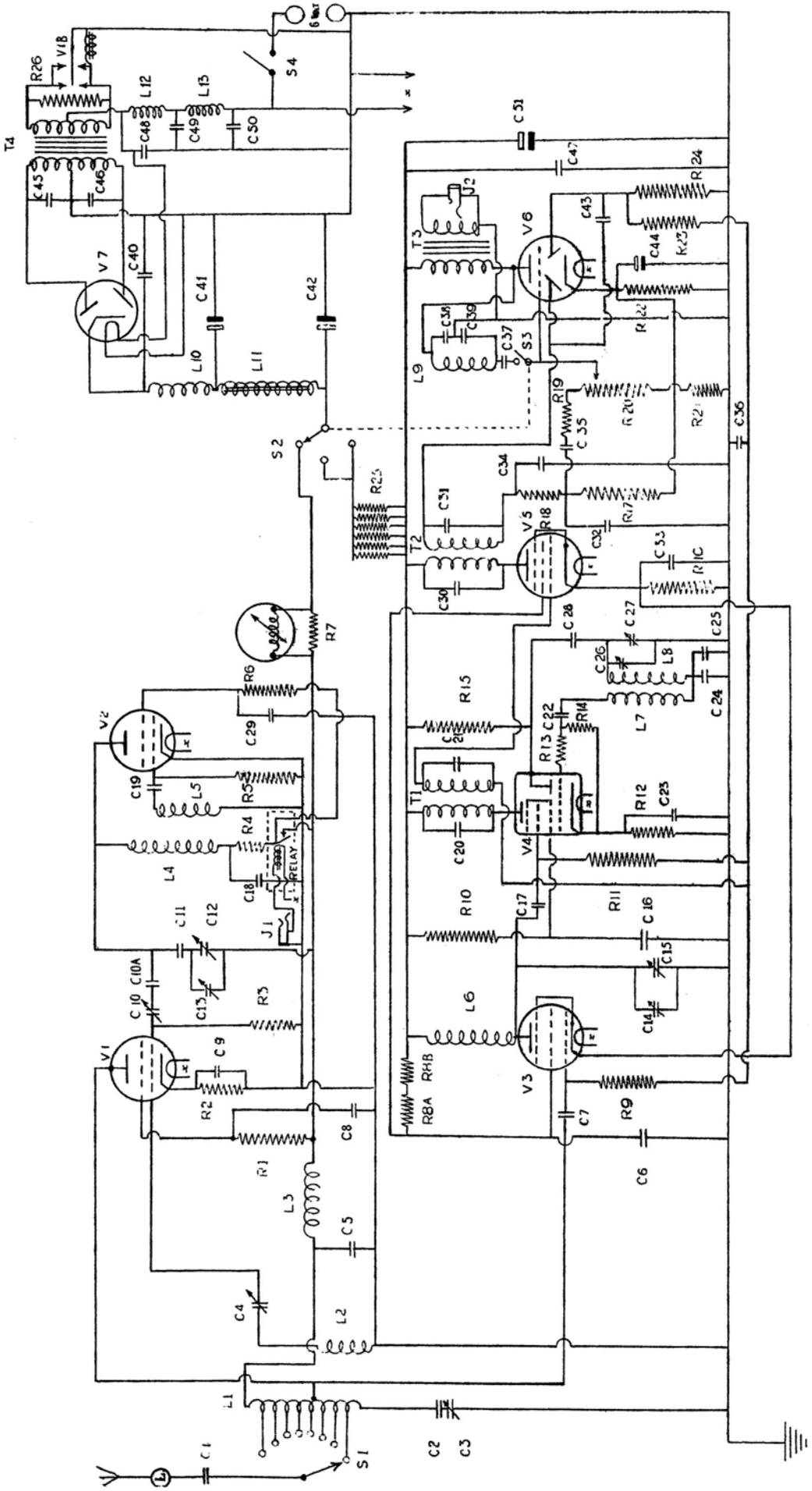
Wireless Set No. 1 MARK 1 (also referred to as 'No. 1 MARK 1') was a transportable combined transmitter receiver for CW communication operating on short wave. It was powered by a 6V car battery, built in a metal case with two metal flaps at the front which gave protection against weather conditions, and when closed protected the controls on the front panel.

The set was believed to be a private venture of Pye Ltd. in Ireland, most likely backed by Pye Ltd. in England. As one may well ask who would be the primary customer of this set, which has no British Army nomenclature numbers, it would possibly be Ireland being a neutral state during World War 2. Considering the frequency coverage of 1.9 to 5MHz, the MARK 1 would be well suited for the maximum range required for communication within the republic. The serial number 1030 on the identification plate seems slightly overrated considering the strength of the Irish Defence Forces at that time; s/n 103 would possibly be more realistic. The date of development and manufacture might be 1942 being the last number on the identification plate.

There is little doubt that the design of Wireless Set No. 1 MARK 1 was based on the British Army Wireless Set No. 18, developed by Pye Ltd. in 1940, though it was equipped with indirect heated valves, whereas the No. 18 Set had 2V filaments.
Very remarkable was the absence of a netting button and the awkward location of the volume control knob on the front panel.

Confirmation is requested for the organisation, date of introduction and number of No. 1 MARK 1 sets produced.

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Circuit diagram of Wireless Set No. 1 MARK 1.

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COMPONENTS.

Transformers and Inductances.

		Location	Reference
T1	1st I.F. Transformer	Fig. 2	77287/MK.1
T2	2nd I.F. Transformer	,, 2	77288/MK.1
T3	Phones Transformer	,, 3	77248/MK.1
T4	Power Transformer	,, 2	77270/MK.1
L1	P.A. Tank Coil		62128/MK1
L2	Neutralizing Coil		
L3	R.F. Choke	,, 2	62054/L3/MK.1
L4	M.O Tank Coil	,, 3	62134/M.O/MK.1
L5	M.O Coupling Coil		
L6	Receiver R.F. Tuned Anode Coil	,, 3	62054/L6/MK.1
L7	Oscillator Grid Coupling Coil	,,	62054/Osc/MK.1
L8	Oscillator Tuned Anode Coil		
L9	Beat Oscillator Coil	,, 3	62160/MK.1
L10	R.F. Filter Choke	,, 3	62054/L10/MK.1
L11	L.F. Smoothing Choke	,, 3	77293/MK.1
L12	L.T. RF Filter Choke	,, 2	62054/L12/MK.1
L13	L.T. RF Filter Choke	,, 2	62054/L13/MK.1

Valves.

V1	6L6G	Fig 2	
V2	6V6G	,, 2	
V3	6K7	,, 2	
V4	6K8	,, 2	
V5	6K7	,, 2	
V6	6V7G	,, 2	
V7	6W5G	,, 2	Alternative 6 x 5GT

Switches, Jacks.

		Location	Reference
S1	Aerial Tapping Switch S.P. 8-position	Fig. 1-2	83188/MK.1
S2	Send-Receive Switch	,, 1-2	1048/MK.1
S3	C.W.-Phone Receive Switch		
S4	ON-OFF Switch	,, 1-2	83187
J1	Morse Key Jack	,, 1	90097
J2	Double Phone Jack	,, 1	90095

Miscellaneous.

Socket 6-volt Input		Fig. 1-2	P74
Plug 6-volt connector	Supplied Loose		
Quick Grip Clips 1 pair			
Lead for 6-volt supply			70/36 VIR special
Meter Micrometer 0-500		Figs 1-2	90099
Aerial Terminal		,, 1-2	Terminal, large
Earth Terminal		,, 1	Terminal, small
Tuning Lamp		,, 1-2	6.3v .3amp MES
Tuning Lampholder		,, 2	75/342/MK.1

Resistances.

	Resistances		Location	Tolerance ±
R1	30,000 ohms	2 watt non-insulated	Fig. 3	10%
R2	149 ohms	½ watt insulated	,, 3	5%
R3	70,000 ohms	½ watt non-insulated	,, 3	10%
R4	680 ohms	½ watt insulated	,, 3	5%
R5	100,000 ohms	½ watt insulated	,, 3	10%
R6	2 x 22,000 ohms	1 watt each, non-insulated	,, 3	10%
R7	2.5 ohms	wirewound	,, 2	5%
R8A	10,000 ohms	½ watt insulated	,, 3	10%
R8B	10,000 ohms	,, ,,	,, 3	10%
R9	1 megohm	½ ,, ,,	,, 2	20%
R10	27,000 ohms	½ ,, ,,	,, 3	10%
R11	1 megohm	½ ,, ,,	,, 3	20%
R12	270 ohms	½ ,, ,,	,, 3	10%
R13	47 ohms	½ ,, ,,	,, 3	10%
R14	47,000 ohms	½ watt insulated	Fig. 3	10%
R15	27,000 ohms	½ ,, ,,	,, 3	10%
R16	130 ohms	½ ,, ,,	,, 3	5%
R17	1 megohms	½ ,, ,,	,, 3	20%
R18	100,000 ohms	½ ,, ,,	,, 3	20%
R19	10,000 ohms	½ ,, ,,	,, 2	10%
R20	500,000 ohms	Volume Control	Figs. 1-2	—
R21	27,000 ohms	½ watt insulated	Fig. 2	10%
R22	1,800 ohms	½ ,, ,,	,, 3	10%
R23	470,000 ohms	½ ,, ,,	,, 3	10%
R24	1 megohm	½ ,, ,,	,, 3	20%
R25	6 x 18,000 ohms	½ and 1 watt insulated	,, 3	10%
R26	130 ohms	½ watt insulated	,, 3	5%

Condensers.

		Location	Reference.
C1	0.005mfd Mica	Fig 2	TCC–M3
C2	0.005mfd Mica	,, 2	TCC–M3
C3	Aerial Tuning Condenser "AE"	,, 2	80098/MK.1
C4	Neutralizing Trimmer Double type	,, 2	S1102/3–WR
C5	0.1 mfd Paper	,, 2	Ferranti/1500 v.
C6	0.1 mfd Paper	,, 3	Ferranti/1500 ,,
C7	100 mmfd Mica	,, 2	Lemco ± 10%
C8	0.1 mfd Paper	,, 3	Ferranti/1500 v.
C9	0.1 mfd Paper	,, 3	Hunts/350 volts
C10	Drive Trimmer—Double Type	,, 2	S1102/3–W.R.
C10A	200 mmfd Mica	,, 2	Lemco ± 10%
C11	0.005 mfd Mica	,, 3	TCC M.3
C12	M.O Tuning "S"	,, 2	80098/MK.1
C13	M.O Trimmer 3–30	,, 2	80136/Plessey
C14	R.F. (Receiver) Trimmer—Double type	,, 2	S1102/3–W.R.
C15	R.F. (Receiver) Tuning "R"	,, 2	80098/MK.1
C16	0.1 mfd Paper	,, 3	Ferranti/1500v.
C17	100 mmfd Mica	,, 3	Lemco ± 10%
C18	0.01 mfd Paper	,, 3	TMC/450 volts
C19	100 mmfd Mica	,, 3	Lemco ± 10%
C20	80 mmfd Mica	,, 2	Lemco ± 2%
C21	80 mmfd Mica	,, 2	Lemco ± 2%
C22	100 mmfd Mica	,, 3	Lemco ± 10%
C23	0.1 mfd Paper	,, 3	Hunts/350 volts
C24	1000 mmfd Mica	,, 3	Lemco ± 10%
C25	Trimmer—Padding	,, 3	80126 Hunts
C26	Oscillator Trimmer—Double Type	,, 2	S1102/3–W.R.
C27	Oscillator Tuning "R"	,, 2	80098 MK.1
C28	100 mmfd Mica	,, 3	Lemco ± 10%
C29	0.1 mfd Paper	Fig. 3	Ferranti 1500 v.
C30	80 mmfd Mica	,, 2	Lemco ± 2%
C31	80 mmfd Mica	,, 2	Lemco ± 2%
C32	100 mmfd Mica	,, 3	Lemco ± 10%
C33	0.1 mfd Paper	,, 3	Ferranti 1500 v.
C34	100 mmfd Mica	,, 3	Lemco ± 10%
C35	0.01 mfd Paper	,, 3	T.M.C. ± 10%
C36	0.1 mfd Paper	,, 3	Ferranti 1500 v.
C37	30 mmfd Mica	,, 3	Lemco ± 20%
C38	1000 mmfd Mica	,, 3	Lemco ± 10%
C39	100 mmfd Mica	,, 3	Lemco — 10%
C40	0.1 mfd Paper	,, 3	Ferranti/1500 v.
C41	8 mfd Electrolytic	,, 2	M.A. 15157
C42	16 mfd Electrolytic		
C43	100 mmfd Mica	,, 3	Lemco ± 10%
C44	20 mfd Electrolytic	,, 3	M.A. 10560
C45	0.005 mfd Mica	,, 3	TCC—M3
C46	0.005 mfd Mica	,, 3	TCC—M3
C47	0.1 mfd Paper	,, 3	Ferranti/1500 v.
C48	.5 mfd Paper	,, 2	TMC/300 volts
C49	.5 mfd Paper	,, 2	TMC/300 volts
C50	.5 mfd Paper	,, 2	TMC/300 volts
C51	2 mfd Electrolytic	,, 3	MA10521

Vibrator.

VIB. SP606B.

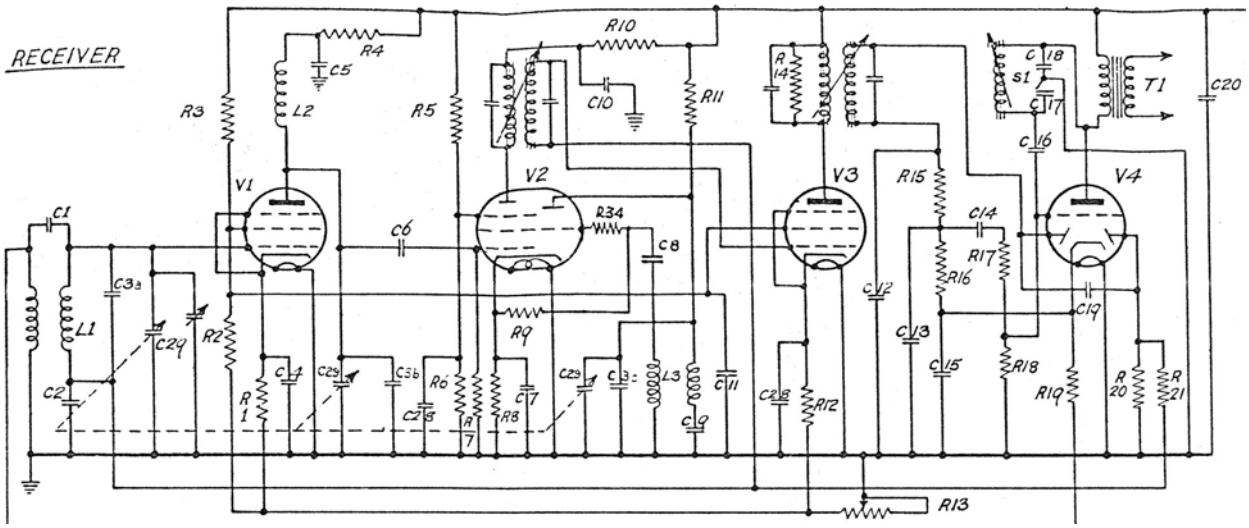
(Alternative Mallory 46) Fig. 2 SP606B (Mallory 46)

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Keying of the transmitter was by means of a relay in the master oscillator valve HT circuit. There was no provision for crystal control. A view of the circuit diagram shows that the functional valve layout was quite similar to that of the No. 18 Set. Also similar was the aerial coupling and neutralising of the final stage of the transmitter, which was designed for CW Morse only. The aerial circuit was, as with the No. 18 Set, common to both receiver and transmitter.
The receiver had a separate oscillator section, and bears much similarity to the receiver part of the SOE A Mk.1, which was also derived from the No. 18 Set. The BFO circuit was identical to the SOE Set, but the No. 1 MARK 1 had no RF gain but a conventional delayed AVC, which was more suitable for reception of AM signals.

Mechanical features.

Wireless Set No. 1 MARK 1 was composed of a single steel chassis and front panel, mounted on four rubber feet, housed in a pressed steel case with carrying handles at each end. The front of the case had two hinged metal flaps, the upper flap closing over the lower flap, secured by two milled screws. A waterproof hinge cover was provided for the upper hinge.
The three slow motion dials had a locking mechanism identical to that of the No. 18 Set and many mechanical components originate from this set.



The circuit diagram of SOE A Mk.I, also based on the No. 18 Set, was very similar to the No. 1 MARK 1, with the main difference that the A Mk.I had an RF volume control.

British Army Wireless Set No. 18 was introduced in 1940 for short range radio communication between Battalion and Company HQs, operated by regimental signallers. There is little doubt that the mechanical and electrical features of this set were the base for the development of Wireless Set No. 1 MARK 1 by the Irish factory of Pye Ltd., build on a single chassis, using indirectly heated valves powered from a 6V car battery.



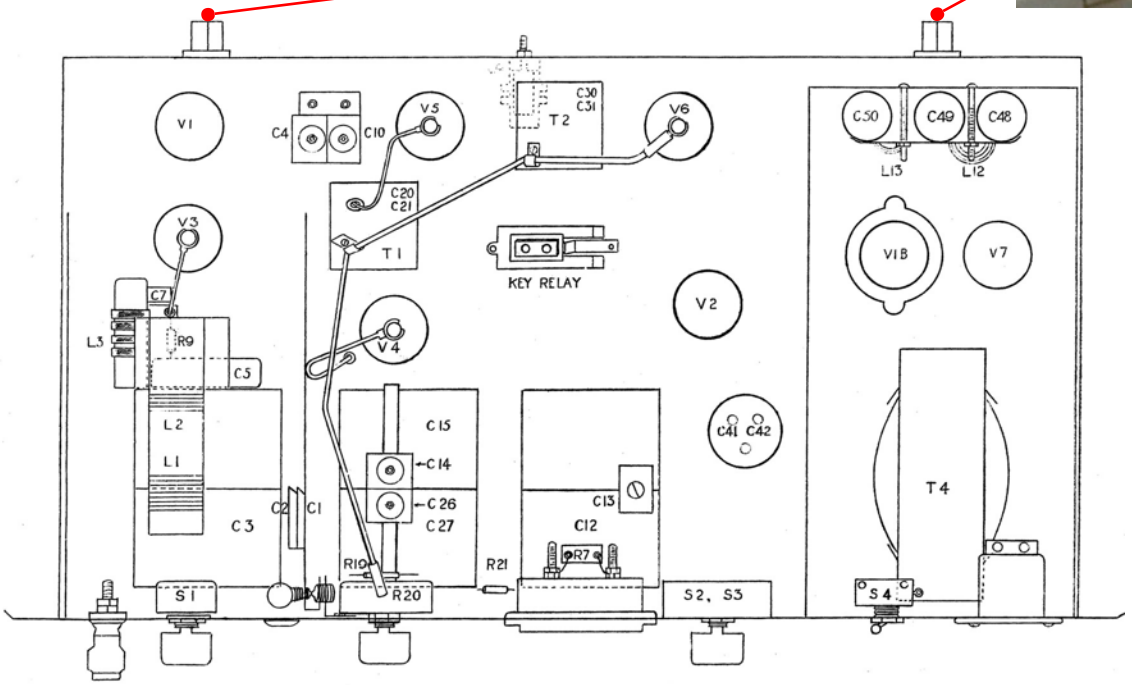
The receiver part of the British SOE A Mk.I was electrically very similar to that of the Wireless Set No. 1 MARK 1. (See circuit diagram above.)



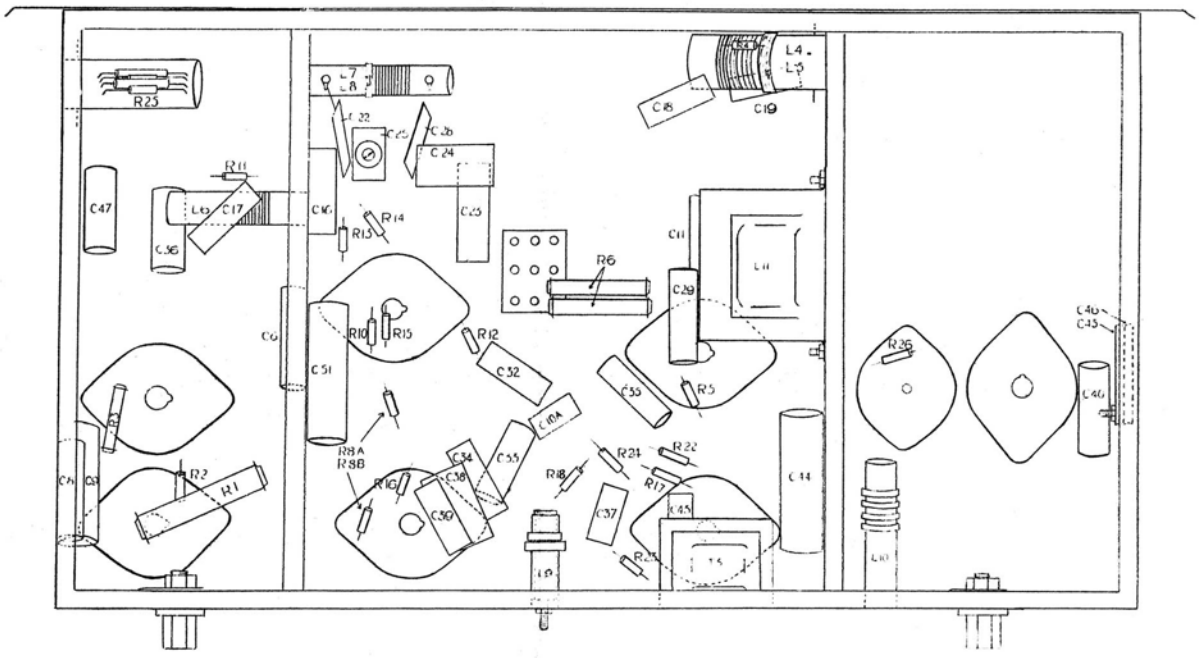
Front panel view of Wireless Set No. 18 Mk.III.

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Top view of the No. 1 MARK 1 chassis, showing the vibrator power unit. (right). The aerial tuning components and RF output valve were located at the left. Note the two rubber mounted fixing sockets at the rear for securing the chassis with two milled set securing screws, similar as with Wireless Set No. 18. (See inset photo of No. 18 Set securing socket).



Bottom view of the No. 1 MARK 1 chassis.

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