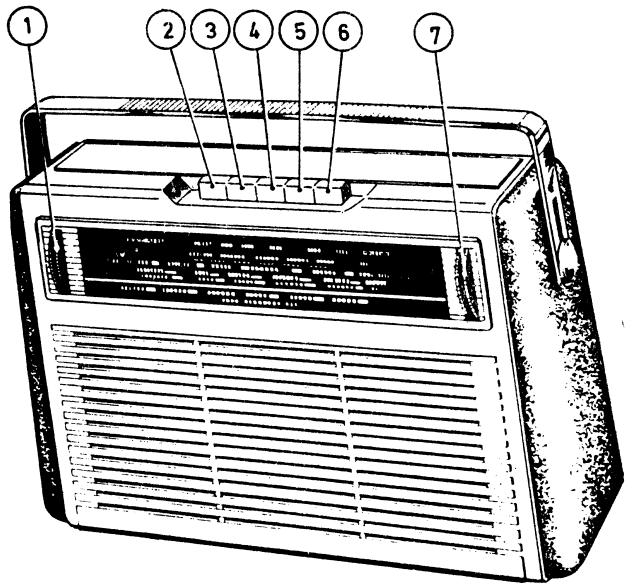
PHILIPS *Service* notes

PORTABLE RECEIVER MODEL L3X09T



SPECIFICATIONS

(Subject to alteration without notice)

Battery voltage	6V (4 x 1.5V cells)
Battery consumption	17mA (no signal)
Tuning ranges	B/C, 1622–517 kc/s SW2, 5.2–1.62Mc/s SW1, 18.1–5.9Mc/s
Intermediate frequency	452 kc/s (see alignment instructions)
Cabinet	Plastic with leatherette-covered plastic ends

KNOB FUNCTIONS.

1. — Volume control.
2. — On-off switch (press again to release).
3. — Tone control (press again to release).
4. — SW1 band.
5. — SW2 band.
6. — B/C band.
7. — Tuning control.

SEMI-CONDUCTOR FUNCTIONS

	No.	Type	Function
Transistor	TS1	OC 170	Frequency Converter
,,	TS2	OC 45	I.F. Amplifier
,,	TS3	OC 45	I.F. Amplifier
,,	TS4	OC 71	Audio Amplifier
,,	TS5	OC 71	Audio Driver
,,	TS6	OC 72	Class B. Power Output
,,	TS7	OC 72	Class B. Power Output
Germanium diode	X1	OA 79	Demodulator and A.V.C.
,, ,,	X2	OA 79	Limiting Diode

OCTOBER 1961 — PUBLISHED BY PHILIPS ELECTRICAL INDUSTRIES PTY. LTD.
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L3X09T

CAPACITORS

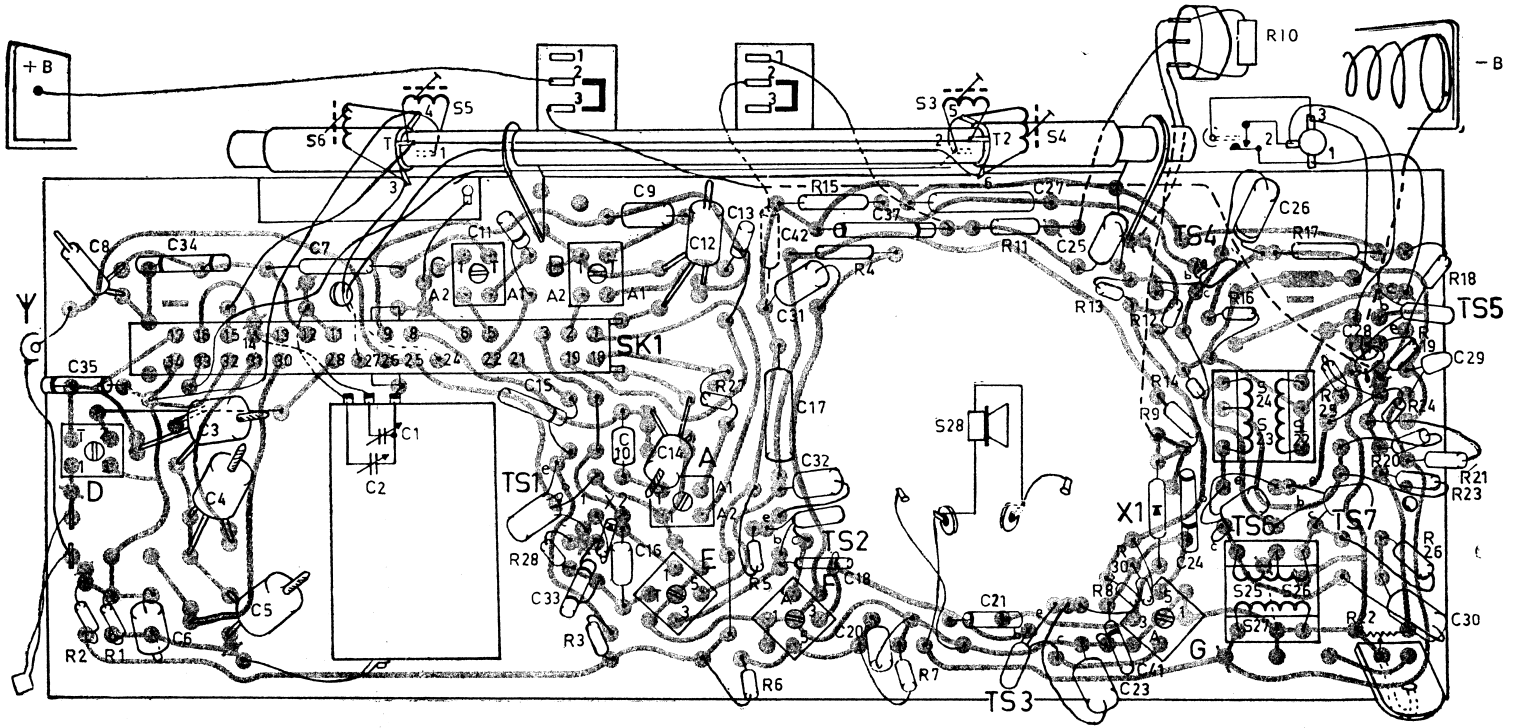
C. No.	Description	Code No.
1, 2	Tuning capacitor	49.002.61
3	30 pF air trimmer	908/30E
4	30 pF air trimmer	908/30E
5	30 pF air trimmer	908/30E
6	0.1 μF polystyrene 125V, 10%	906/L100K
7	0.0075 μF polystyrene 125V, 5%	906/L7K5
8	10 pF ceramic trimmer	908/10E
9	0.0011 μF styroflex 500V, 2½%	905/D1K1
10	350 pF styroflex	C285.AB/D350E
11	0.0033 μF ceramic	904/P3K3
12	30 pF air trimmer	908/30E
13	0.0047 μF ceramic	904/P4K7
14	30 pF air trimmer	908/30E
15	0.01 μF ceramic	904/P10K
16	0.001 μF styroflex 500V, 2½%	905/D1K
17	4 μF 64 VW electrolytic	909/Z4
18	56 pF ceramic N750, 2%	904/56E
19	Part of 2nd I.F.T.	
20	0.1 μF polystyrene 125V, 10%	906/L100K
21	18 pF ceramic N150 5%	904/18E
22	Part of 3rd I.F.T.	
23	0.1 μF polystyrene 125V, 10%	906/L100K
24	0.015 μF ceramic Hi-K −20% +50%	904/15K
25	4 μF 64VW electrolytic	909/Z4
26	4 μF 64VW electrolytic	909/Z4
27	4 μF 64VW electrolytic	909/Z4
28	20 μF 6.4VW electrolytic	C.426.AM/C20
29	470 pF ceramic	904/P470E
30	0.1 μF polystyrene 125V, 10%	906/L100K
31	200 μF 6.4VW electrolytic	C.426.AM/C200
32	0.1 μF polystyrene, 125V, 10%	906/L100K
33	0.01 μF ceramic	904/P10K
34	3.9 pF ceramic	904/P3E9
35	18 pF ceramic	904/P18E

RESISTORS

R. No.		Description	Code No.
1	8,200 Ω	carbon ½w, 10%	902/8K2
2	2,700 Ω	,, ,, ,,	902/2K7
3	1,200 Ω	,, ,, ,,	902/1K2
4	180,000 Ω	,, ,, ,,	902/180K
5	560 Ω	,, ,, ,,	902/560E
6	4,700 Ω	,, ,, ,,	902/4K7
7	15,000 Ω	,, ,, ,,	902/15K
8	1,000 Ω	,, ,, ,,	902/1K
9	15,000 Ω	,, ,, ,,	902/15K
10	10,000 Ω	carbon potentiometer (volume control)	B1.530.32
11	680 Ω	carbon ½w, 10%	902/680E
12	82,000 Ω	,, ,, ,,	902/82K
13	15,000 Ω	,, ,, ,,	902/15K
14	4,700 Ω	,, ,, ,,	902/4K7
15	1,800 Ω	,, ,, ,,	902/1K8
16	27,000 Ω	,, ,, ,,	902/27K
17	6,800 Ω	,, ,, ,,	902/6K8
18	220 Ω	,, ,, ,,	902/220E
19	680 Ω	,, ,, ,,	902/680E
20	56 Ω	,, ,, ,,	902/56E
21	18,000 Ω	,, ,, ,,	902/18K
22	2,000 Ω	trim potentiometer (bias adjustment)	B1.514.54
23	1,000 Ω	carbon ½w, 10%	902/1K
24	10 Ω	,, ,, ,,	902/10E
25	10 Ω	,, ,, ,,	902/10E
26	150 Ω	,, ,, ,,	902/150E
27	18 Ω	,, ,, ,,	902/18E
28	680 Ω	,, ,, ,,	902/680E
30	270 Ω	,, ,, ,,	902/270E

COILS

No.	Description	Code No.
S1	Loop in cabinet	—
S2—2a	SW1 Aerial coil	A3.987.07
S3—4—5—6—	Ferroceptor aerial SW2 and B/C	A3.986.01
S7—8—9	SW1 Oscillator coil	A3.129.81
S10—11—12	SW2 Oscillator coil	A3.129.82
S13—14—15	B/C Oscillator coil	A3.129.80
S16—17	1st I.F. Transformer	A3.129.83
S18—18a—19, C19	2nd I.F. Transformer	A3.129.60
S20—20a—21, C22	3rd I.F. Transformer	A3.129.61
S22—23—24	Driver Transformer	A3.162.21
S25—26—27	Output Transformer	A3.154.24 or A3.154.25
S28	Loudspeaker	Type AD3414Z



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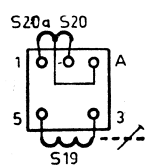

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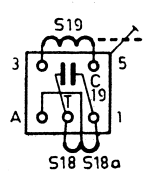

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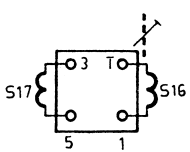

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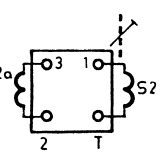

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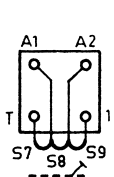

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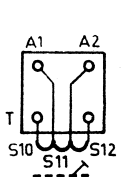

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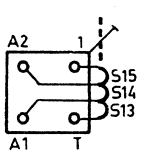
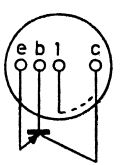
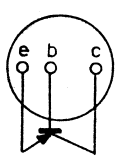




TS1



TS 2-3-4-5-6-7

L3X09T

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ALIGNMENT PROCEDURE

Refer to chassis layout drawing for trimming point positions.

I.F. Alignment

Spot alignment is used. Wave range switch is at SW1 band, tuning capacitor is fully out, signal generator through I.F. dummy is applied at collector of TS1 except for adjustment of first I.F.T. when it is applied additionally through a 0.1M Ω resistor to the same point.

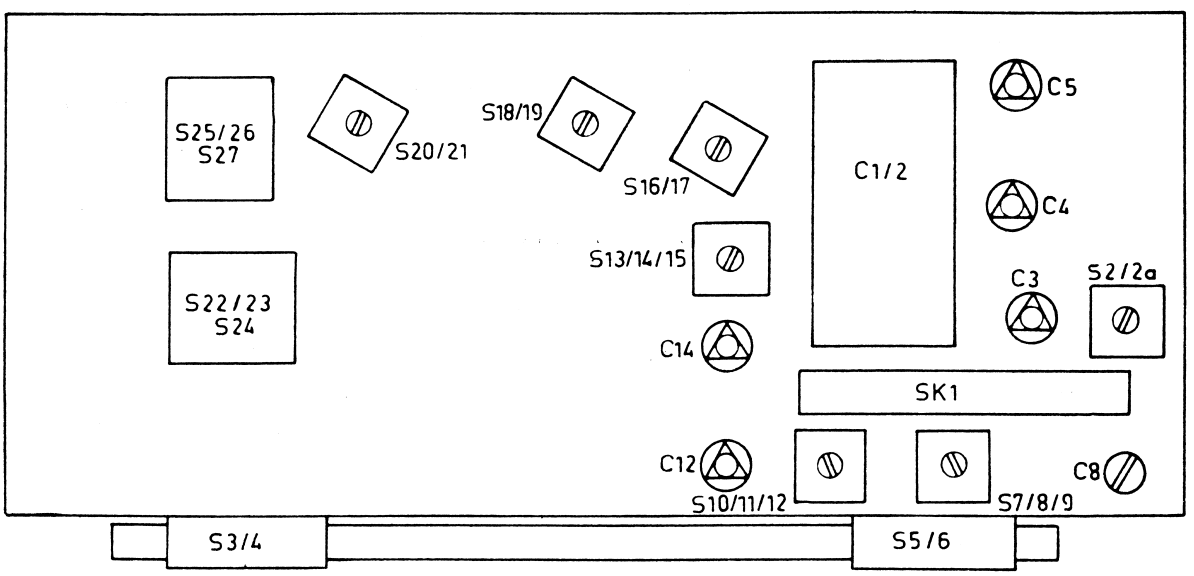
Frequency	Adjust to Peak
451 kc/s	S20, S21
453 kc/s	S18, S19
452 kc/s	S16, S17

R.F. Alignment

Signal generator is applied direct to a coupling winding of three or four turns of insulated wire wound round the Ferroceptor rod.

Wave Range Switch	Signal Frequency	Tuning Capacitor	Adjust to Peak
B/C	512 kc/s	Max.	S13, S14, S15
,,	1625 kc/s	Min.	C14
,,	550 kc/s	550 kc/s*	S5, S6
,,	1500 kc/s	1500 kc/s*	C5
SW2	1.61 Mc/s	Max.	S10, S11, S12
,,	5.25 Mc/s	Min.	C12
,,	1.74 Mc/s	1.74 Mc/s*	S3, S4
,,	4.8 Mc/s	4.8 Mc/s*	C4
SW1	5.85 Mc/s	Max.	S7, S8, S9
,,	18.2 Mc/s	Min.	C8
,,	6.35 Mc/s	6.35 Mc/s*	S2, S2a
,,	16.9 Mc/s	16.9 Mc/s*	C3

* These points are indicated at the appropriate positions on the dial scale by small triangular shaped marks.



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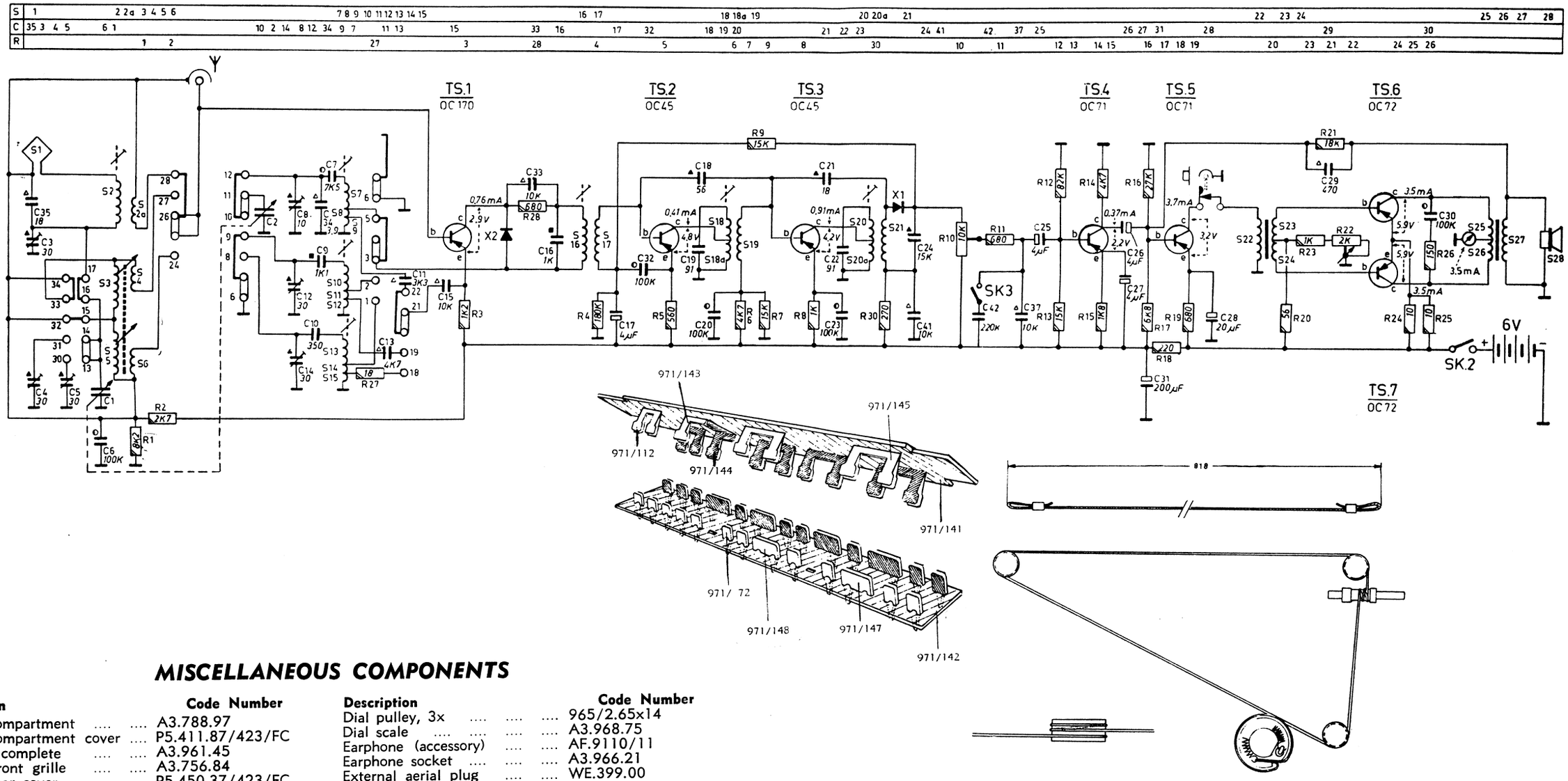

MISCELLANEOUS COMPONENTS

Description	Code Number
Battery compartment	A3.788.97
Battery compartment cover	P5.411.87/423/FC
Cabinet; complete	A3.961.45
Cabinet front grille	A3.756.84
Cabinet rear cover	P5.450.37/423/FC
Cabinet end; L.H.	A3.796.20
Cabinet end; R.H.	A3.796.21
Carrying handle	A3.311.10
Dial drum	P4.382.07/799
Dial pulley, 3x	965/2.65x14
Dial scale	A3.968.75
Earphone (accessory)	AF.9110/11
Earphone socket	A3.966.21
External aerial plug	WE.399.00
External aerial socket	A3.966.41
Knob; tuning, volume	P4.078.22/801/MN
Push-button; switch 5x	P5.420.49/139/FC
Screw; carrying handle 2x	A3.714.72
Spring; battery compartment	A3.796.27

SWITCH PARTS

Wave Range Switch SK1
(Refer to drawing on circuit diagram page)

Description	Code No.
Contact spring 2x (moving)	971/112
Contact spring 1x (moving)	971/144
Contact spring 5x (moving)	971/145
Contact lip 20x (fixed)	971/72
Contact lip 3x (fixed)	971/147
Contact lip 3x (fixed)	971/148
Contact slide (moving micarta)	971/141
Contact plate (fixed micarta)	971/142
Leaf spring 3x (W/C sliding bars)	A3.294.30

On/Off and Tone Switches SK2, SK3

Description	Code No.
Contact spring 2x (moving)	971/112
Contact lip 6x (fixed)	971/79
Contact slide 2x (moving micarta)	971/192
Contact plate 2x (fixed micarta)	971/193
Compression spring 2x (for returning push-button)	A3.492.25
Torsion spring 2x (for holding down push-button)	971/117

REMOVAL OF PRINTED BOARD FROM CABINET

Remove the battery compartment cover by sliding up.
Loosen the two screws inside the battery compartment but do not remove them.
Ease the cabinet back at the top and hinge out at the bottom from where it will come clear with a snap.
Unsolder the speaker leads from below the speaker.
Unsolder the aerial loop leads at the bottom L.H. corner.
Remove the earphone socket and the external aerial socket from the cabinet ends.
Remove the battery compartment by removing its two mounting screws.
Remove the two screws from the metal backing plate behind the switch assembly.
Remove the two screws fitted with micarta washers from the right and left hand edges of the printed board.
Remove the screw from the L-shaped bracket at bottom centre of the printed board but leave the bracket on the board.

The board may now be eased from the cabinet with care to clear the switch unit buttons.
Refitting the board is a reversal of the above procedure.