

SERVICE INFORMATION FOR THE

PHILIPS

PORTABLE RECEIVER L2X00T

INTRODUCTION

The L2X00T is a M.W., L.W., and S.W. battery operated portable radio. It has provision for earphone listening and a telescopic aerial to improve S.W. reception. Seven transistors and two diodes are used.

TRANSISTOR COMBINATION

T1	AF116	Frequency Changer.
T2	AF117	1st I.F. Amplifier.
T3	AF117	2nd I.F. Amplifier.
T4	OC71	1st A.F. Amplifier.
T5	OC71	2nd A.F. Amplifier.
T6	OC72	Output (Matched Pair).
T7	OC72	
X1	OA79	Detector Diode.
X2	OA79	Mixing Diode.

SUPPLY VOLTAGE

6V D.C. (4 x 1.5V).

BATTERY TYPES

Ever Ready	D.14	Vidor	VOO30
Ever Ready	U.12	Vidor	VOO28

CONSUMPTION

20 mA (100 mW Output).

WAVEBAND RANGES

MW	185 — 580 metres.
LW	1150 — 2000 metres.
SW	19.4 — 51 metres.

TRIMMING FREQUENCIES

I.F.	452Kc/s, 453Kc/s, 450Kc/s.
M.W.	517Kc/s, 1635Kc/s.
L.W.	148Kc/s, 262Kc/s.
S.W.	5.8Mc/s, 15.2Mc/s, 15.6Mc/s.

HEADPHONE TYPE AF9001/11.

DIMENSIONS

Width 8½ in. Height 4½ in. Depth 1½ in.

CIRCUIT NOTES

In order to overcome the effect of hand capacitance a counter-poise earth lead is supplied with the receiver. This lead should be plugged into the socket below the headphone socket and will improve reception on all wavebands.

UNCASING

(a) Separating the Cabinet

Place the receiver face downwards on a soft cloth. Remove the two screws at the back of the receiver. Unscrew the wavechange knob, remove the two screws above the tuning knob and the two screws above the volume control. The battery compartment flap may now be removed and the front section of the cabinet lifted away. When recasing it is important to ensure that the locating lugs and sockets on their respective mouldings interlock correctly.

(b) Removing the Chassis

Unsolder the following leads :—

- (i) Battery negative.
- (ii) Speaker.
- (iii) S4.
- (iv) Two sockets.
- (v) Telescopic aerial.
- (vi) Panel end of the red lead to S2.

After removing the two screws (one below the gang, the other above the V.C.) the chassis may now be lifted clear.

TRIMMING INSTRUCTIONS

General

(a) Sound output should be observed with an output meter set for a 10Ω load impedance, trimming level, 50 mW. The loud-speaker must be disconnected and the meter connected to the receiver output leads. Turn the volume control to maximum.

(b) When trimming the aerial circuits, a convenient coupling between the generator and receiver may be made by winding two or three turns of insulated wire around the centre of the ferrite aerial. A low impedance out-put from the generator should be connected to this coil.

(c) If a suitable trimming tool is not available for trimming the cores of the I.F. and oscillator coils, one can easily be made by cutting a slot in end of a non-metallic size 10 knitting needle.

Pointer Setting

Turn the gang to minimum and adjust the pointer to line up with the "m" at the left hand end of the scale.

I.F. Trimming

- 1.—Switch to M.W.
- 2.—Turn gang to minimum and the volume control to maximum.
- 3.—Connect a signal generator to the collector of T3 via a 4.7kΩ resistor and apply a modulated signal of 452Kc/s. Trim L17/18 for maximum output.
- 4.—Connect the generator, via a 33KpF capacitor to L1.
- 5.—Adjust the Generator frequency to 543.5Kc/s and trim L15/16 for maximum output.
- 6.—Adjust the generator frequency to 450.5Kc/s and trim L13/14 for maximum output.
- 7.—Repeat as necessary.

OFFICIAL SERVICE AGENT :—

AMALGAMATED ELECTRIC SERVICES LTD.

WADDON FACTORY ESTATE

CROYDON

SURREY

Telephone

CROYDON

7722

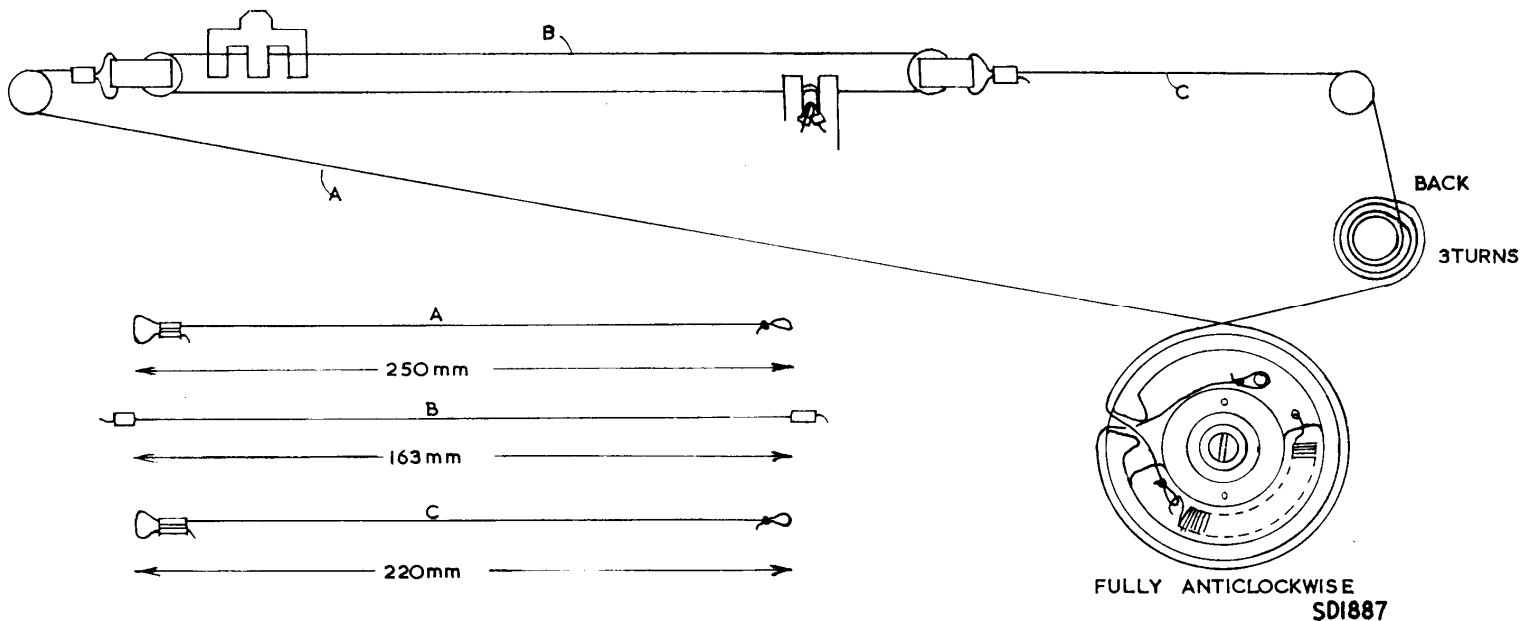
R.F. Trimming

(a) Oscillator trimming

- 1.—Switch to L.W. and turn the Tuning gang to maximum.
- 2.—Apply a modulated signal of 148Kc/s to the coupling loop and trim L7/8/9 for maximum output.
- 3.—Switch to M.W. and turn the gang to minimum.
- 4.—Adjust the generator frequency to 1635Kc/s and trim C7 for maximum output.
- 5.—Switch to L.W. leaving the gang at minimum capacity.
- 6.—Adjust the generator frequency to 262Kc/s and trim C23 for maximum output.
- 7.—Switch to S.W. and turn tuning gang to maximum.
- 8.—Apply a modulated signal of 5.8Mc/s via a 4.7pF capacitor to the telescopic aerial and trim L10/11/12 for maximum output.
- 9.—Turn the gang to minimum and adjust the generator frequency to 15.6Mc/s.
- 10.—Adjust C6 for maximum output.
- 11.—Repeat as necessary.

(b) Aerial trimming

- 1.—Switch to L.W. and apply a modulated signal of 158.5Kc/s via the coupling loop to the ferrite aerial.
- 2.—Rotate the tuning gang to the position of maximum output.
- 3.—Trim L1 for maximum output.
- 4.—Adjust the generator frequency to 250Kc/s.
- 5.—Tune the receiver to this frequency and trim C10 for maximum output.
- 6.—Switch to M.W. and apply a modulated signal of 517Kc/s via the coupling loop to the ferrite aerial.
- 7.—Tune the receiver to this frequency and trim L3 for maximum output.
- 8.—Adjust the generator frequency to 1635Kc/s.
- 9.—Tune the receiver to this frequency and trim C12 for maximum output.
- 10.—Switch to S.W. and turn the gang to maximum.
- 11.—Apply a modulated signal of 5.8Mc/s via a 4.7pF capacitor to the telescopic aerial.
- 12.—Trim L5/6 for maximum output.
- 13.—Adjust the generator frequency to 15.2Mc/s and tune the receiver to this frequency.
- 14.—Adjust C11 for maximum output.
- 15.—Repeat as necessary.

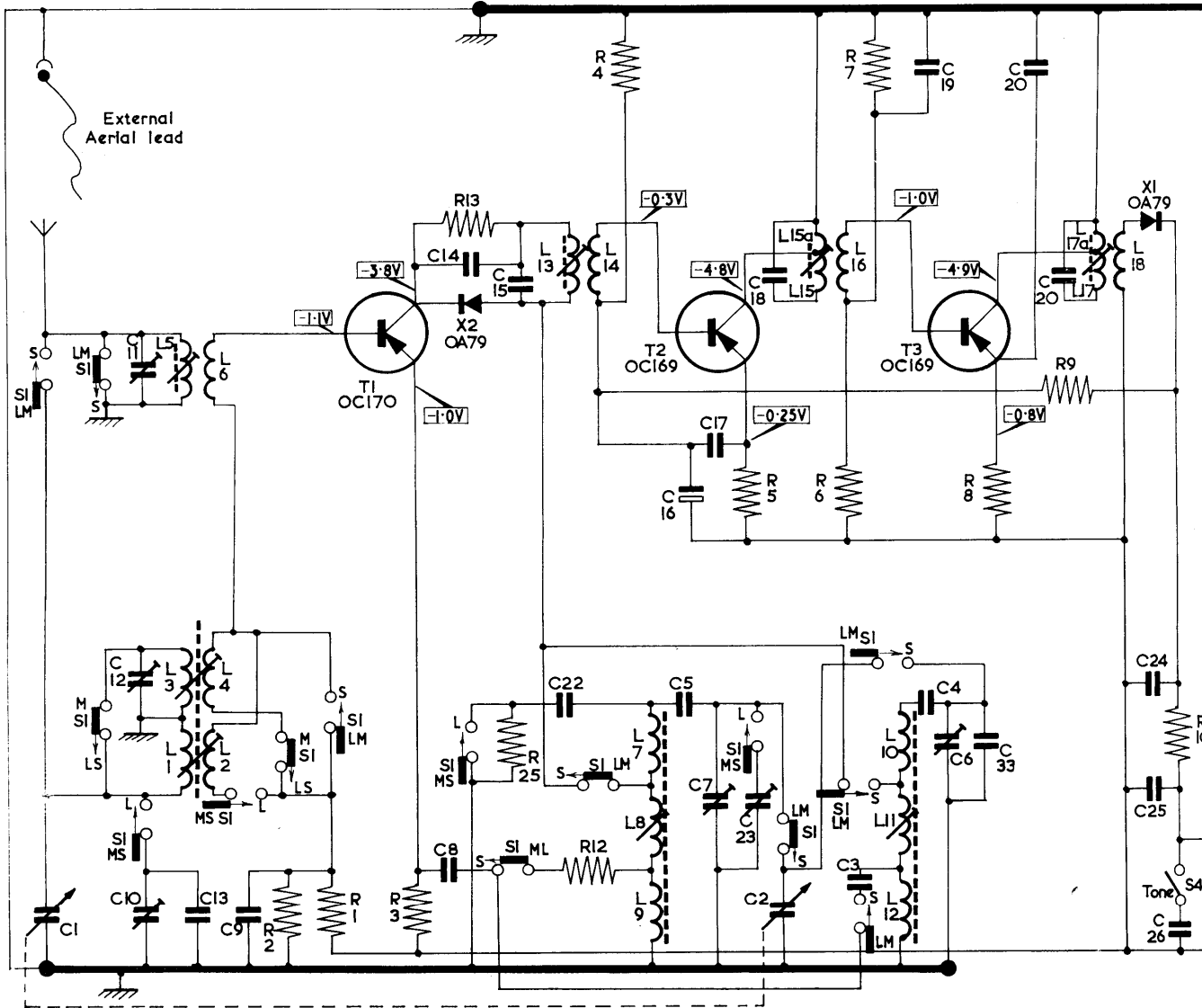


L	5. 3.1.	6. 4. 2.		13. 14.	7. 8. 9.		15. 15a.	16.	10. 11. 12.		17. 17a.	18.		
C	1.	11. 12. 10. 13.	9.		8. 14. 15.	22.		5. 16. 17. 7.	23. 18. 2.		3. 19. 4. 6. 33.	20. 21.	24. 25. 26.	
R			2.	1.	3.	13. 25.	12. 4.		5.		6. 7.	8.	9.	10.

CIRCUIT DRAWN IN THE M.W. POSITION.
 All voltages taken with respect to battery +ve
 using a valve voltmeter of approx. 10MΩ impedance.

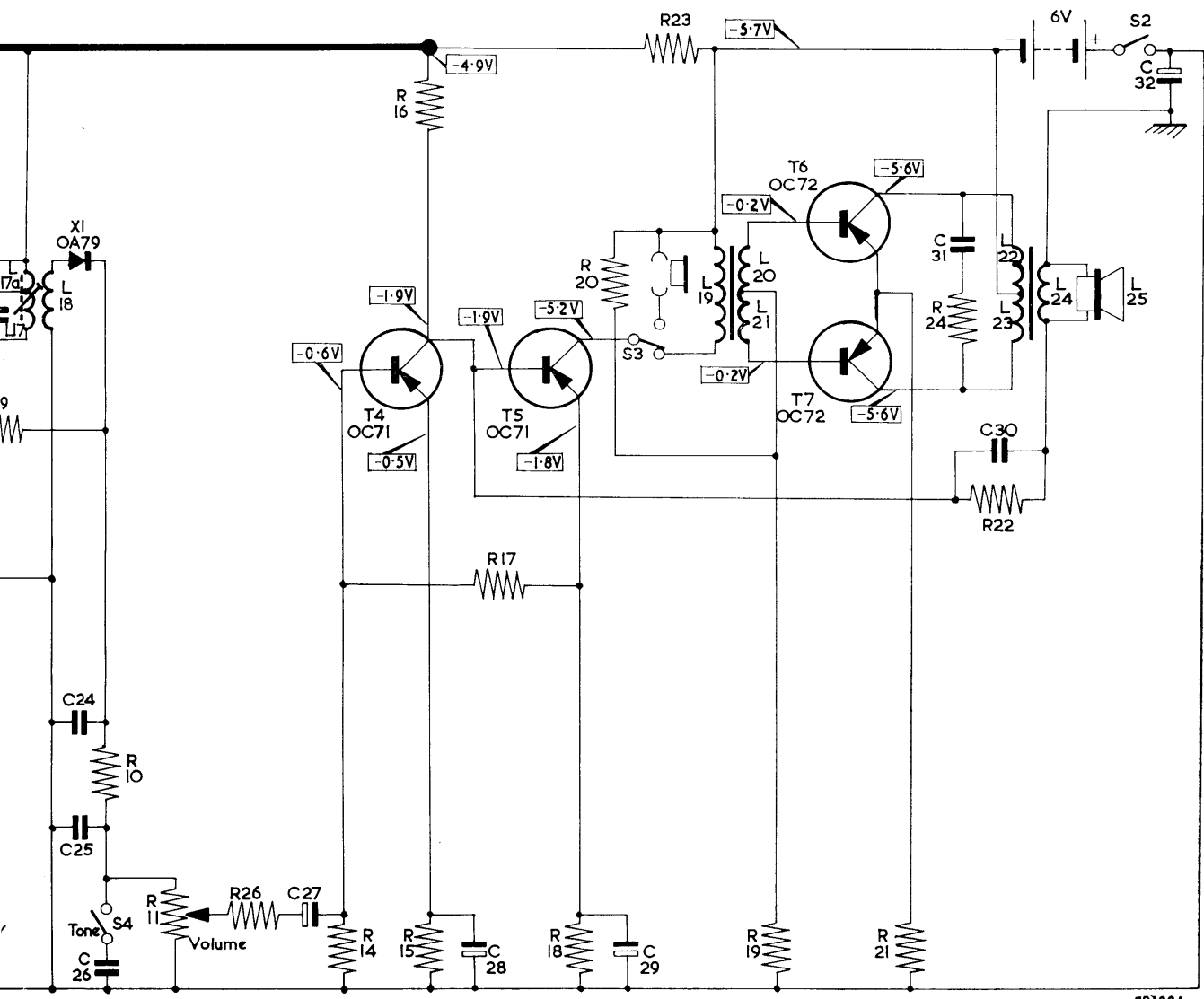
CAPACITORS

- C1 } Gang
- C2 } 2.2 KpF
- C3 } 3.9 KpF
- C4 } 270 pF
- C5 } 10 pF
- C6 } 10 pF
- C7 } 10 KpF
- C8 } 15 KpF
- C9 } 10 pF
- C10 } 10 pF
- C11 } 10 pF
- C12 } 10 pF
- C13 } 108 pF
- C14 } 10 KpF
- C15 } L13/14
- C16 } 6.4 uF
- C17 } 47 KpF
- C18 } L15/16
- C19 } 10 KpF
- C20 } 47 KpF
- C21 } L17/18
- C22 } 232 pF
- C23 } 10 pF
- C24 } 3.7 KpF
- C25 } 3.7 KpF
- C26 } 47 KpF
- C27 } 10 uF
- C28 } 25 uF
- C29 } 12.5 uF
- C30 } 220 pF
- C31 } 47 KpF
- C32 } 200 uF
- C33 } 15 pF



IN SOME SETS T1, T2, T3, WILL BE AF116, AF117, AF117 RESPECTIVELY

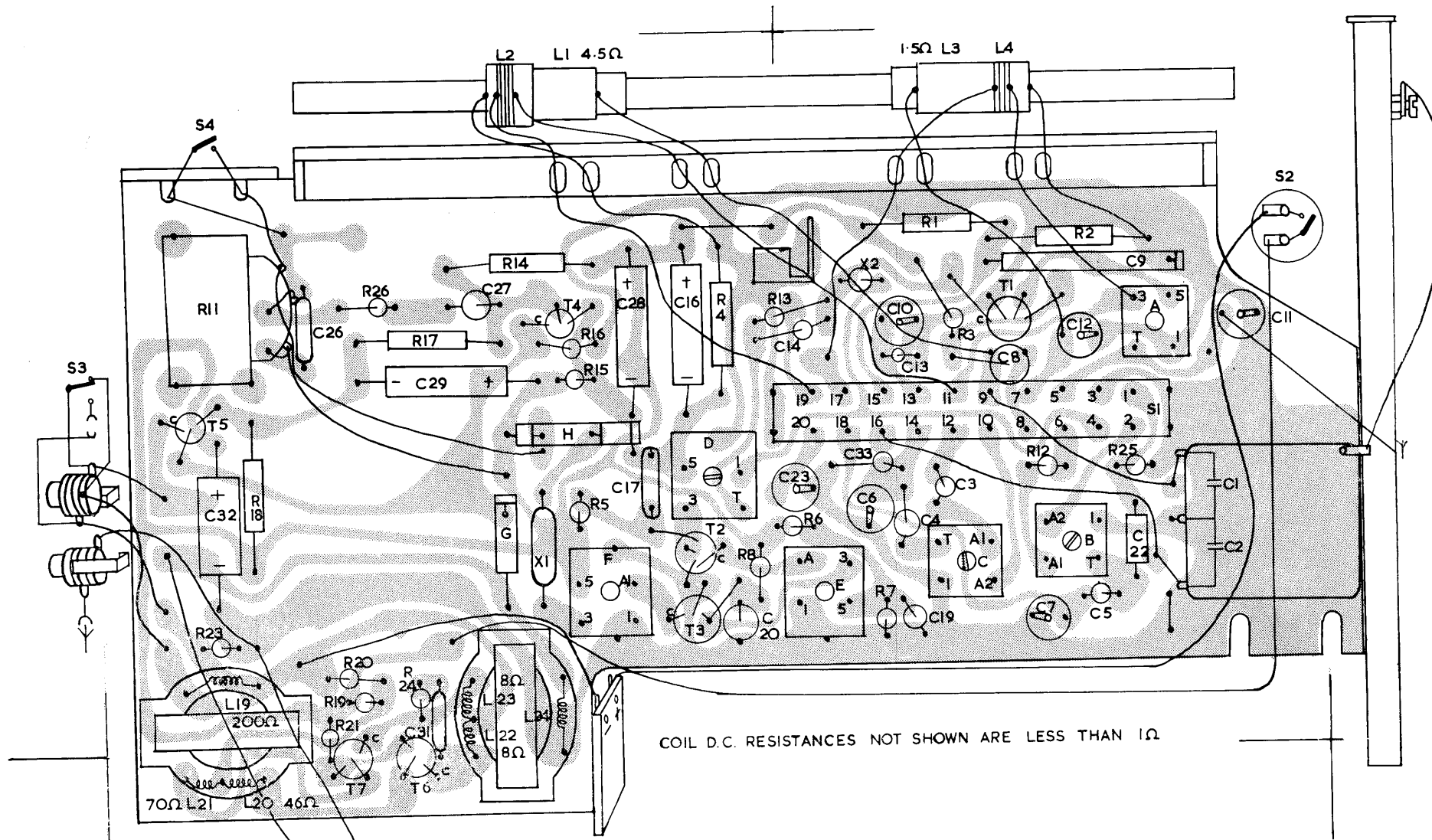
17, 17a, 18.		19.	20, 21.	22, 23, 24, 25.	L
21.	24, 25, 26.	27.	28.	29.	31, 30
32.	C				
9.	10.	11.	26.	14.	16, 15.
			17.	18, 20, 23.	19.
				21.	24.
				22.	R



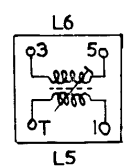
RESISTORS

R1	2.7 K
R2	8.2 K
R3	1.2 K
R4	0.12 M
R5	560
R6	4.7 K
R7	15 K
R8	1 K
R9	15 K
R10	1 K
R11	10 K
R12	22
R13	1.2 K
R14	15 K
R15	820
R16	4.7 K
R17	22 K
R18	1 K
R19	100
R20	3 K
R21	10
R22	56 K
R23	220
R24	270
R25	0.18 M
R26	1.5 K

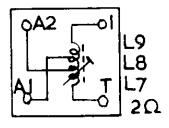
SD1884



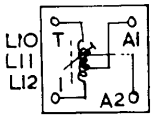
COIL D.C. RESISTANCES NOT SHOWN ARE LESS THAN 1Ω



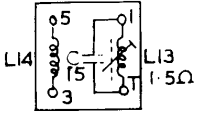
A



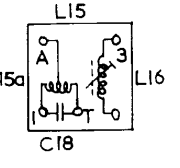
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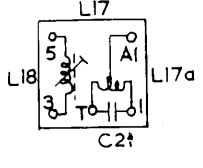
C



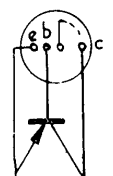
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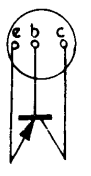
E



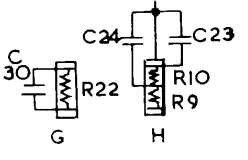
F



T1.2.3



T4.5.6.7



SD1886

SPARE PARTS LIST — TYPE L2X00T

CASE ASSEMBLY

Front—red	...	A3.056.90
Front—black	...	A3.348.54
Philips emblem	...	A3.825.70
Philips trade name	...	A3.825.69
Speaker grille	...	A3.833.35
Speaker clamp (3)	...	A3.935.81
Screws (3)	...	B.054.ED/3 x 4
Threaded pillars for case sections (2)	...	A3.832.26
Rear—red	...	A3.056.89
Rear—black	...	A3.961.32
Ornamental screws	...	B.055.GK/3 x 10
Feet (2)	...	A3.830.45
Swivel pin (2) } for above	...	
Spring (2) }	...	
Battery label	...	A3.634.19
Battery cover assembly	...	
Battery compartment	...	P5.172.51/159HA
Battery sleeves (2)	...	P5.172.52/159HA
Battery contact spring (2)	...	A3.957.02
Side screws (4)	...	B.055.EE/2 x 6
Carrying strap	...	A3.687.34
Earphone/earth sockets (2)	...	A3.966.21
Ornamental nuts for sockets (2)	...	A3.715.60
Washers for sockets	...	MK.451.10
Type label	...	

CONTROL KNOBS ETC.

Volume	...	P4.078.18/799AA
Screw	...	B.061.DD/3 x 6
Tuning knob	...	P4.078.19/417WS
Screw for above	...	B.054.ED/2 x 4
Tone button	...	P5.260.70/148HA
Plate for above	...	A3.957.04
Battery button	...	P5.260.69/332HA
Indication plate for above	...	A3.634.17
On/off switch	...	F.073.AA/01
Bronze spring	...	A3.216.53
Wavechange lever	...	A3.935.83
Chrome knob for above	...	A3.293.18

STATION SCALE ASSEMBLY

Scale	...	A3.969.95
Escutcheon for scale	...	A3.216.07
Moulded diffusion screen assembly	...	P5.342.02/195

POINTER DRIVE ASSEMBLY

Pointer	...	P5.450.34/931
Drive cord	...	HY.074.25
Drive drum	...	P4.095.14/799AA
Screw for above	...	B.055.ED/2.6 x 6

Tension spring	...	A3.818.54
Pulley (2)	...	A3.833.40
Circlip (2)	...	B.108.AF/1.2
Pulley on knob	...	A3.833.39
Sliding pulley assembly on cord (2)	...	
Cord loop grip (4)	...	B002.AF/2.6 x 3
Eyelet	...	B.002.AF/3 x 4

MISCELLANEOUS

Telescopic aerial	...	A3.832.25
Screws for above	...	B.055.EE/2 x 6
W/C switch assembly with mounting bracket complete	...	
Screws for gang mounting (2)	...	B.054.ED/2 x 4
Sleeving	...	K.558.LB/8 x 9
Mounting screws for printed panel	...	B.054.ED/2.6 x 5
Jack plug for lead	...	42131

HEADPHONE ASSEMBLY

*Headphone assembly complete	...	AF9110/11
Capsule	...	EL3593/07
Earloop	...	V3.053.88
Lead and plug assembly	...	A3.814.43
Jack plug only	...	42131

* This accessory is obtainable from :—

**PHILIPS ELECTRICAL LTD.
CENTURY HOUSE,
SHAFESBURY AVENUE,
LONDON, W.C.2**

TRANSISTORS & DIODES

T1	...	AF 116
T2	...	AF 117
T3	...	AF 117
T4	...	OC 71
T5	...	OC 71
T6 & 7 Matched pair	...	OC 72/Matched pair
X1 & 2	...	OA 79

TRANSFORMERS & COILS, ETC.

L1—4 Rod aerial assembly	...	A3.176.61
L5—6 S.W. aerial coil	...	A3.176.64
L7—9 MW & LW Oscillator coil	...	A3.910.44
L10—12 SW. Oscillator coil	...	A3.176.65
L13—14 1st I.F.	...	A3.162.36
L15—16 2nd I.F.	...	A3.162.35
L17—18 3rd I.F.	...	A3.162.37
L19—21 Input transformers	...	A3.162.33
L22—24 Output transformer	...	A3.154.40
L25 Loudspeaker	...	AD2216Z
Cores for coils L5, 7, 10, 13, 15	...	K5.120.00

CAPACITORS

	Value	Permitted Tolerance %	
C1 } Gang	...	...	A3.173.81
C2 }	...	...
C3 Pin up	2,200pF	10	C.322.BA/H2K2
C4 Polyester	3,900pF	10	C.296.AC/A3K9
C5 Suflex	270pF	1	
C6 Trimmer	10pF	...	908/P10E
C7 Trimmer	10pF	...	908/P10E
C8 Polyester	10,000pF	10	906/L10K
C9 Ceramic	15,000pF	10	904/15K
C10 Trimmer	10pF	...	908/P10E
C11 Trimmer	10pF	...	908/P10E
C12 Trimmer	10pF	...	908/P10E
C13 Suflex	108pF	1	
C14 Polyester	10,000pF	10	906/L10K
C15	...	...	See L13-14
C16 Electrolytic	6.4uF	...	909/Z6.4
C17 Pin up	47,000pF	10	B1.655.09
C18	...	...	See L15-16
C19 Polyester	10,000pF	10	906/L10K
C20 Polyester	47,000pF	10	906/L47K
C21	...	...	See L17-18
C22 Suflex	232pF	1	
C23 Trimmer	10pF	...	908/P10E
C24	3,700pF	...	See R9 & 10
C25	3,700pF	...	See R9 & 10
C26 Pin up	47,000pF	10	B1.655.09
C27 Electrolytic	10uF	...	909/W10
C28 Electrolytic	25uF	...	C.426.AM/F25
C29 Electrolytic	12.5uF	...	C.426.AM/G12.5
C30	220pF	...	See R22
C31 Pin up	47,000pF	10	B1.655.09
C32 Electrolytic	200uF	...	909/W200
C33 Ceramic	15pF	10	904/15E

RESISTORS

	ohms	Permitted Tolerance %	
R1	2,700	10	48.426.10/2K7
R2	8,200	10	48.426.10/8K2
R3	1,200	10	48.426.10/1K2
R4	120,000	10	48.426.10/120K
R5	560	5	901/560E
R6	4,700	10	48.426.10/4K7
R7	15,000	10	48.426.10/15K
R8	1,000	10	48.426.10/1K
R9 } (and C24/25	15,000	...	E.556.ZZ/01
R10 }	1,000	...	
R11 Volume control	10,000	log law	
R12	22	10	48.426.10/22E
R13	1,200	10	48.426.10/1K2
R14	15,000	5	901/15K
R15	820	5	901/820E
R16	4,700	5	901/4K7
R17	22,000	5	901/22K
R18	1,000	10	48.426.10/1K
R19	100	5	901/100E
R20	3,000	5	901/3K
R21	10	10	48.426.10/10E
R22 (and C30)	56,000	...	E.551.ZZ/04
R23	220	10	48.426.10/220E
R24	270	10	48.426.10/270E
R25	180,000	10	48.426.10/180K
R26	1,500	10	48.426.10/1K5