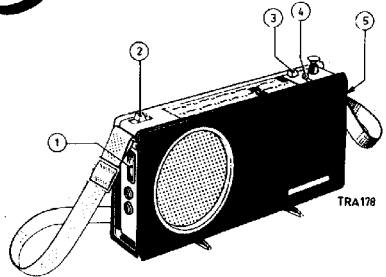


# PHILIPS *Service*

## RADIO

L2X10T/00L/00R  
/15L/15R



Controls		Bediening	Bedienung	Commandes		Mandos
Volume control	1	Volumeregelaar	Lautstärkeregler	Contrôle de volume	1	Control de volumen
Tone control	2	Toonregelaar	Klangregler	Contrôle de tonalité	2	Control de tono
Battery switch	3	Batterijschakelaar	Batterieschalter	Interrupteur de batterie	3	Interruptor de batería
Wave range switch	4	Golfgebiedschakelaar	Wellenbereichschalter	Comm. de gammes	4	Comm. de márgenes
Tuning	5	Afstemming	Abstimmung	Syntonisation	5	Sintonía

Specification		Specificatie	Spezifikation	Specification		Especificación
Loudspeaker	49 242 98 (3 Ω)	Luidspreker	Lautsprecher	Haut-parleur	49 242 98 (3 Ω)	Altavoz
I.F. (90-versions)	452 kc/s	M.F. (00-uitv.)	ZF (00-Ausf.)	F.I. (exéc.-00)	452 kc/s	F.I. (ejec.-00)
I.F. (15-versions)	470 kc/s	M.F. (15-uitv.)	ZF (15-Ausf.)	F.I. (exéc.-15)	470 kc/s	F.I. (ejec.-15)
Battery	6 V (4 x 1,5 V)	Batterij	Batterie	Batterie	6 V (4 x 1,5 V)	Batería
Consumption	20 mA (0,1 Wmax.)	Verbruik	Verbrauch	Consummation	20 mA (0,1 Wmax.)	Consumo
Output	120 mW	Uitgangsvermogen	Ausgangsleistung	Puissance	120 mW	Potencia de salida
Dimensions	206x105x44 mm	Afmetingen	Abmessungen	Dimensions	206x105x44 mm	Dimensiones

**Wave ranges - Golfgebieden - Wellenbereiche - Gammes d'ondes - Márgenes de ondas**

L.W. - L.G. - LW - G.O. - O.L.	: 1150 - 2000 m	( 260 - 150 kc/s)
M.W. - M.G. - MW - F.O. - O.K.	: 185 - 580 m	(1622 - 517 kc/s)
S.W. - X.G. - XW - O.C. - O.C.	: 19,4 - 51 m	( 15,5 - 5,9 Kc/s)

<b>Transistors</b>	TS1 - AF116	TS4 - OC71	CR1 - Oa79
	TS2 - AF117	TS5 - OC71	CR2 - Oa79
	TS3 - AF117	TS6)	
		TS7) - 2 - OC72	

TAKE PHILIPS SERVICE-PARTS - THEN YOU ARE SAFE !

NEMK VOOR ALLE REPARATIES STEEDS PHILIPS SERVICE ONDERDELEN !

NIMM DOCH PHILIPS SERVICE-TEILE !

UTILISEZ LES PIÈCES DÉTACHÉES PHILIPS; C'EST PLUS SÛR !

¡PARA MAYOR SEGURIDAD, ÚSESE LAS PIEZAS DE RECAMBIO PHILIPS

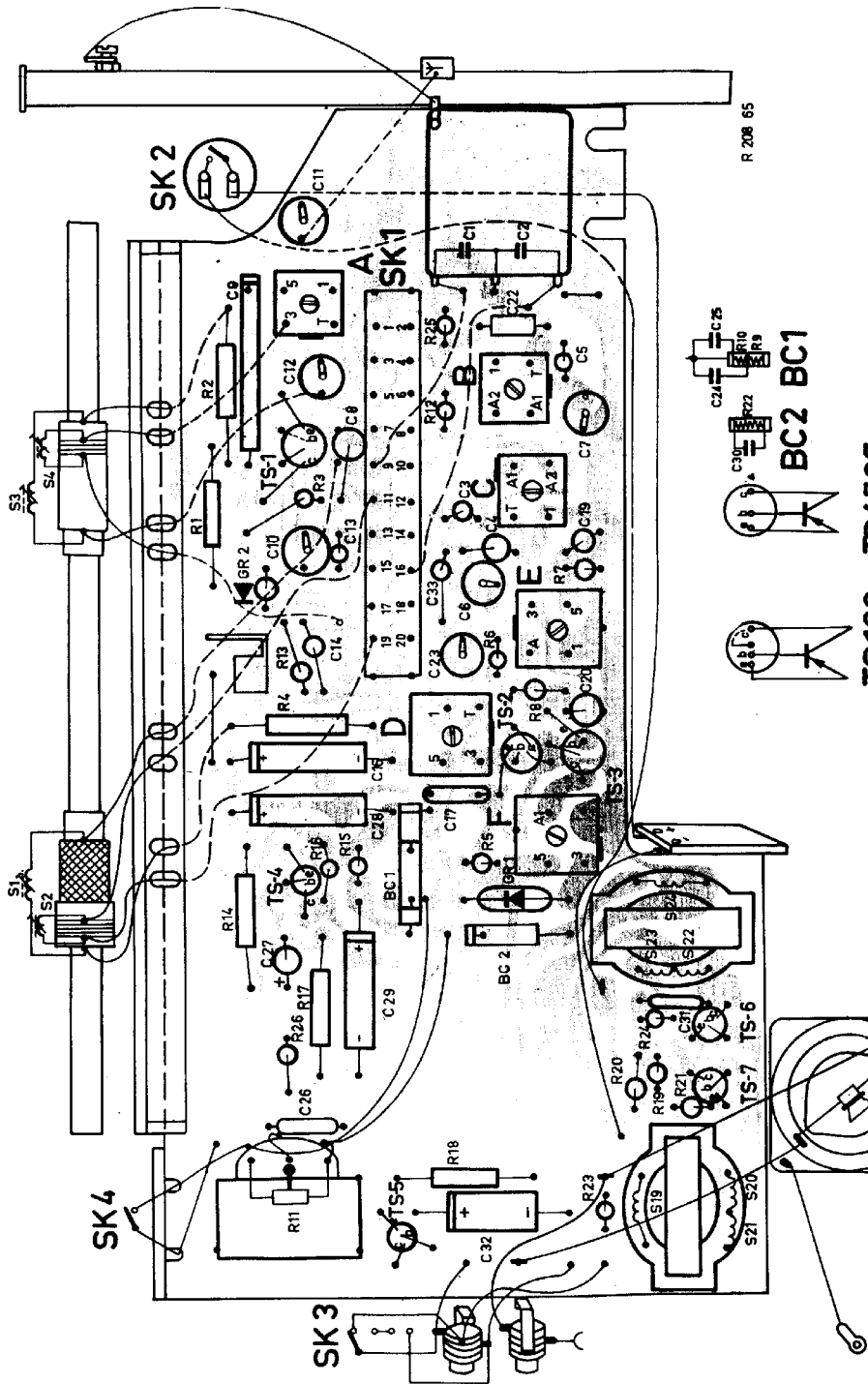
SERVICE INFORMATION									
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Serv-o-necum E-a-1	Wave range Golfgebiet Wellenbereich Gamme d'ondes Márgen de ondas	Varco Varco Drehko Cond. var. Cond. var.	Signal Signaal Signal Signal Señal	Adjust to maximum output Afregeien op maximale uitgangsspanning Abgleichen auf maximale Ausgangsspannung Régler au maximum de sortie Ajustense al máximo de salida	
I.F. circuits M.F.-kringen ZF-Kreise Circuits F.I. Circuitos de F.I.	II	min.	452 kc/s (470 kc/s) via 33000 pF - bTS3  452 kc/s (470 kc/s) via 33000 pF - bTS1	S17-18  S15-16, S13-14	
R.F. circuits H.F.-kringen HF-Kreise Circuits H.F. Circuitos de R.F.	I	max.	148 kc/s *	S7-8-9	
	II	min.	1635 kc/s *	C7	
	I	min.	262 kc/s *	C23	
	Repeat - Herhalen - Wiederholen - Répéter - Repítanse				
	I	158,5 kc/s	158,5 kc/s *	S1	
		250 kc/s	250 kc/s *	C10	
	Repeat - Herhalen - Wiederholen - Répéter - Repítanse				
	II	600 kc/s	600 kc/s *	S3	
		1500 kc/s	1500 kc/s *	C12	
	Repeat - Herhalen - Wiederholen - Répéter - Repítanse				
	III	max.	5,8 Mc/s **	S10-11-12	
		min.	15,6 Mc/s **	C6	
	Repeat - Herhalen - Wiederholen - Répéter - Repítanse				
	III	max.	5,8 Mc/s **	S5	
15,2 Mc/s		15,2 Mc/s **	C11		
Repeat - Herhalen - Wiederholen - Répéter - Repítanse					

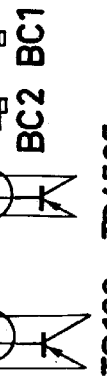
\* Via couple winding  
Koppelwinding  
Kopplungswicklung  
Enroulement de couplage  
Arrollamiento de acoplo

\*\* Via 4,7 pF - Y

S	21.	19.	20.	23	22	24	21.	3.	4.	12.	11.												
C	32.	26.	31.	29.	27.	20.	23	14.	6.	33.	10.	13	4.	18	3.	7.	8.	12.	5.	22.			
R	11.	23.	18.	19.	21	20.	24.	26.	17.	14.	16.	15.	5.	8.	4.	13.	6.	7.	1.	3.	12.	2.	25.



R 208 65

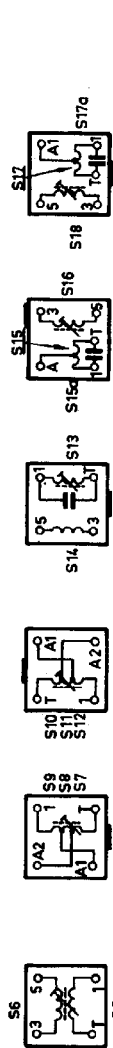


TS-123 TS-1557

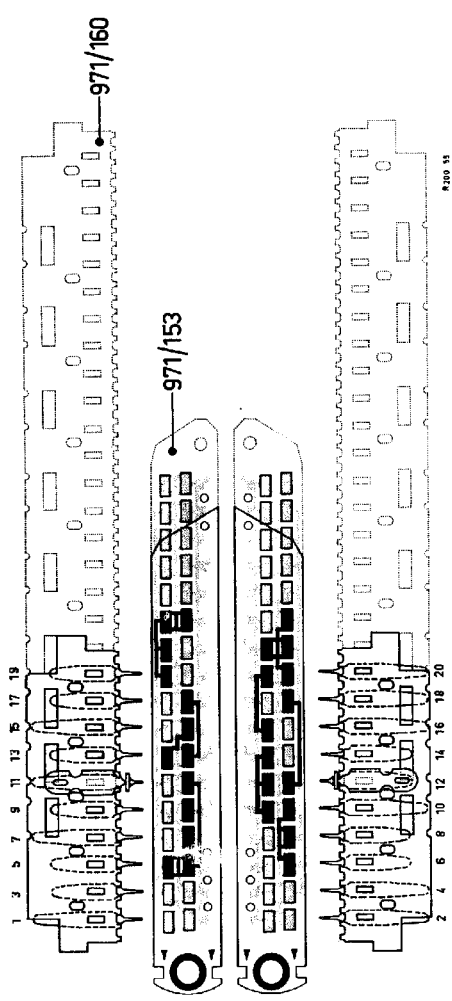
TS123 TS4567



TS123 TS4567



A B C D E F



- 971/158
- 971/155
- 971/157
- 971/156
- 971/162

8200 95

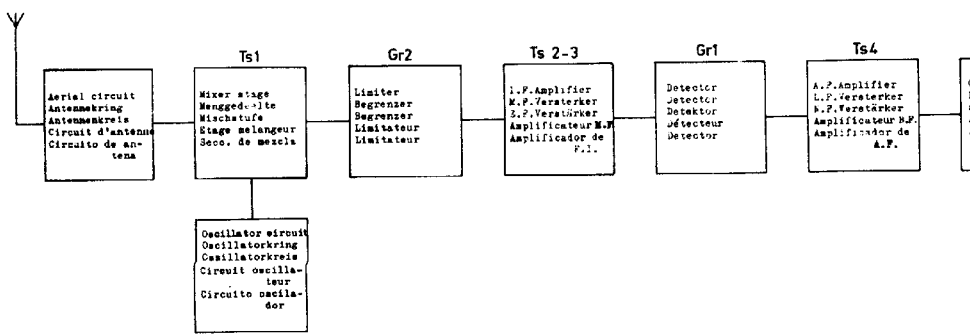
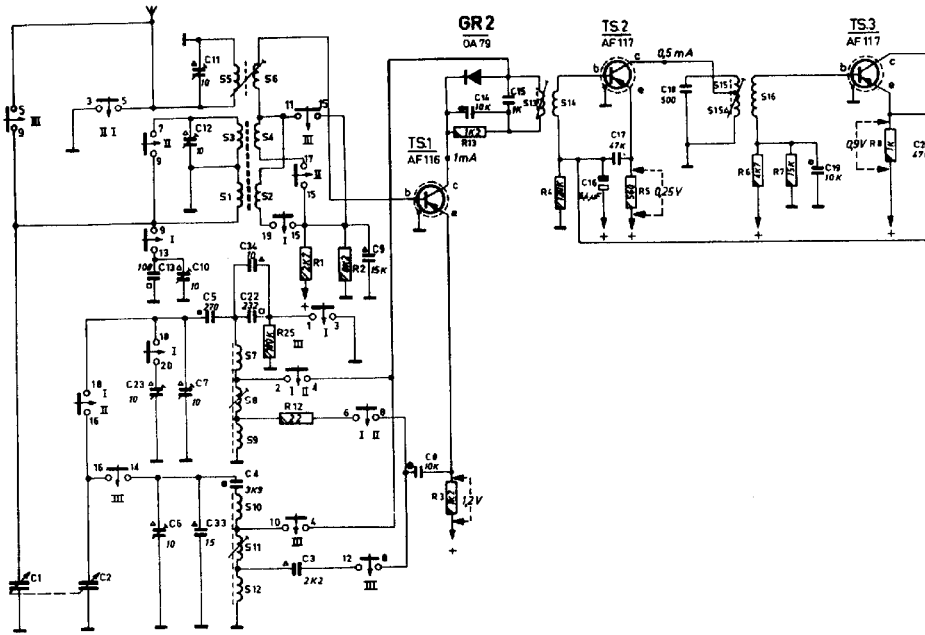
Cabinet, front part : black (R-versions) red (L-versions)	A3 236 54 A5 236 55	Gehäuse, Vorderseite : schwarz (R-Ausf.) rot (L-Ausf.)	A3 236 54 A5 236 55	Caja, parte frontal : negro (ejecución R) rojo (ejecución L)
Cabinet, rear part : black (R-versions) red (L-versions)	A3 961 32 A5 056 89	Kast, achterzijde : zwart (R-uitv.) rood (L-uitv.)	A3 961 32 A5 056 89	Caja, parte posterior : negro (ejecución R) rojo (ejecución L)
Ornamental front : black (R-versions) red (L-versions)	A3 272 91 A5 272 93	Sierfront : zwart (R-uitv.) rood (L-uitv.)	A3 272 91 A5 272 93	Fronte ornamentale : negro (ejecución R) rojo (ejecución L)
Battery cover serial Knob (1)	A3 957 01 A3 832 25 P5 078 18/799/AA	Batterijdeksel Antenne Knop (1)	A3 957 01 A3 832 25 P5 078 18/799/AA	Cubierta de pila Antena Botón (1)
Knob (2) Plate under knob (2) Knob (3)	P5 260 70/148/HA A3 279 73 P5 260 69/148/HA	Knop (2) Plaatje onder knop (2) Knop (3)	P5 260 70/148/HA A3 279 73 P5 260 69/148/HA	Botón (2) Placa bajo botón (2) Botón (3)
Plate under knob (3) Spring fix. knob (2-3)	A3 279 72 A3 818 51	Plaatje onder knop (3) Veer bev. knop (2-3)	A3 279 72 A3 818 51	Placa bajo botón (3) Resorte, fij. botón (2-3) Botón (4)
Knob (4)	A3 293 18	Knop (4)	A3 293 18	Botón (4)
Knob (5) Screw, fix. dial-frame Screw in rear part	P4 078 19/799/HA B 055 BE/2x6 B 055 GK/3x10	Knop (5) Schroef, Bef. Skalenleiste bevv. schaalraam Schroef in achter- zijde	P4 078 19/799/HA B 055 BE/2x6 B 055 GK/3x10	Botón (5) Tornillo, fij. perfil de cuadrante Tornillo en parte posterior
Socket earphone	A3 966 21	Contrastecker oor- telefoon	A3 966 21	Heberrilla de auricular
Nut fix. socket	A3 715 60	Moer bev. contra- stecker	A3 715 60	Tuerca, fij. heberrilla
Foot	A3 830 45	Voet	A3 830 45	Pie
Spring in foot Pin fix. foot Contact plate of tone-switch	A3 818 48 A3 668 32 A3 957 04	Veer in voet Pen bev. voet Contactplaatje van toonschakelaar	A3 818 48 A3 668 32 A3 957 04	Resorte en pie Perno, fij. del pie Placa de contacto del comm. de tonalidad
Battery switch	F 073 AA/01	Batterijschakelaar	F 073 AA/01	Interruptor de pila
Slide around battery switch	P5 411 83/486/ZZ	Schuif om batterij- schakelaar	P5 411 83/486/ZZ	Pestillo alrededor interr. de pila
Battery box	P5 172 51/159/HA	Batterijhouder	P5 172 51/159/HA	Caja de pila
Spring in battery box	A3 957 02	Veer in batterij- houder	A3 957 02	Resorte en caja de pila
Tube for batteries Lrva on rear	P5 172 52/035/AA P4 095 14/799/AA	Buis voor batterijen trommel op vervoer	P5 172 52/035/AA P4 095 14/799/AA	Tubo de pilas Tambor en C.V.
Dial background Pointer	A3 836 37 P5 450 34/931/BB	Schaalachtergrond wijzer	A3 836 37 P5 450 34/931/BB	Fondo de cuadrante Aguja
Switch, wave ranges	A3 297 11	Schakelaar, golfge- bieden	A3 297 11	Conmutador, márgenes de ondas
Carrying bak	AF 9118	Draagtas	AF 9118	Bolsa

Drum on varco	P4 095 14/799/AA	Trommel op varco	Trommel am Drehko	Tambour du C.V.	P4 095 14/799/AA	Fundo de pias Tambor en C.V.
Dial background	A3 836 37	Schaalachtergrond	Skalenhintergrund	Fond d'échelle	A3 836 37	Fondo de cuadrante
Pointer	P5 450 34/931/BB	Wijzer	Zähler	Aiguille	P5 450 34/931/BB	Agulha
Switch, wave ranges	A3 297 11	Schakelaar, golfgebieden	Schalter, Wellenbereiche	Commutateur, gammes d'ondes	A3 297 11	Commutador, márgenes de ondas
Carrying bag	AF 911B	Draagtas	Tragetasche	Sac	AF 911B	Roise
Dial	A3 971 83	Schaal	Skala	Cadran	A3 971 83	Cuadrante

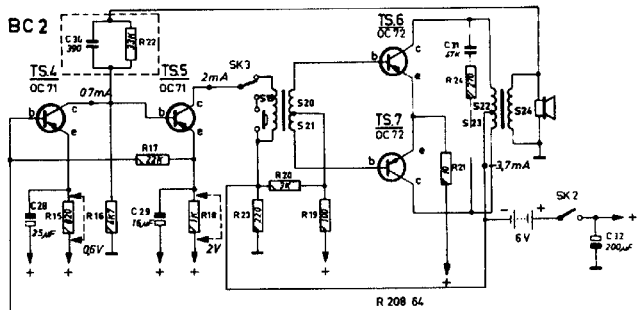
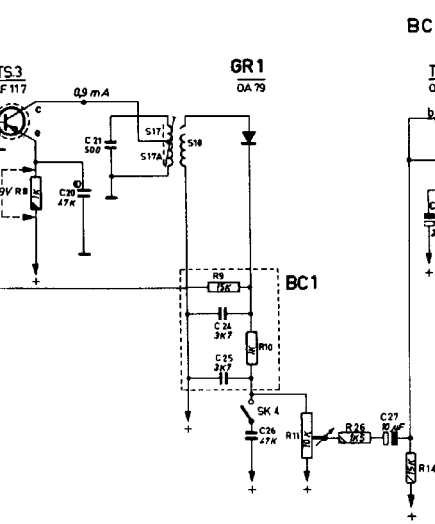
S1)	Ferroreceptor	S17)	I.F. circuit	S22)	Output transformer	C16	909/26/4
S2)	Ferroreceptor	S17a)	M.F.-kring	S23)	Uitgangstrafó	C17	C 280 AA/P47K
S3)	Ferroreceptor	S17b)	ZF-Kreise	S24)	Ausgangstrafó	C26	C 280 AA/P47K
S4)	Ferroreceptor	C15)	Circuit F.I.		Transfo. de sortie		
			Circuito de F.I.		Transfo. de salida		
S5)	Aerial coil	S15)	I.F. circuit	C1)	Variable capacitor	C27	909/W10
S6)	Antennespoel	S15a)	M.F.-kring	C2)	Variabele condensator	C28	909/C25
		S15b)	ZF-Kreise		Drehkondensator	C29	909/U16
		C18)	Circuit F.I.		Condensator var.		
			Circuito de F.I.		Condensador var.		
S7)	Oscillator coil	S17)	I.F. circuit		Potentiometer	C31	C 280 AA/P47K
S8)	Oscillatorspoel	S17a)	M.F.-kring		Potentiometer	C32	909/W200
S9)	OC	S17b)	ZF-Kreise	R11	Potentiometer		
		C21)	Circuit F.I.		Potentiometer		
			Circuito de F.I.		Potentiometre		
					Potenciómetro		
S10)	Oscillator coil SW	S19)	Driver transformer			R9)	
S11)	Oscillatorspoel KG	S19a)	Ingeestrafó			R10)	
S12)	OC	S20)	Transfo. dephasseur			C24)	E 556 22/01
		S21)	Transfo. de entrada			C25)	
						R22)	E 551 22/07
						C30)	

Vri/CD

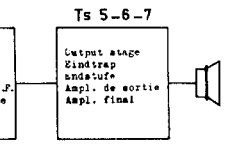
S	5, 31, 7, 8, 9, 10, 11, 12, 6, 6, 2										13, 14	15, 15a, 16			
C	1, 2	13, 23, 6	10	7, 12, 11, 23	5, 4, 22	3	9	8	14	15	16	17	18	19	20
R				25	12	1	2	3	13	4	5	6	7	8	



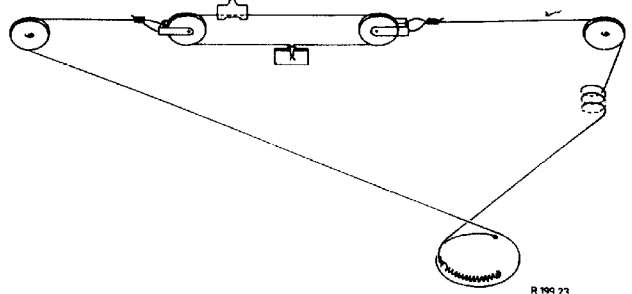
17, 17a, 18			24, 25, 26			27, 28, 30			29			19, 20, 21			22, 23, 24		31, 32	
8	20	21	9	10	11	26	14	15	16	22	17	18	23	20	19	21	24	



- I = LW - LG - LW - GO - OL.
- II = MW - MG - MW - PO - OM.
- III = SW - KG - KW - OC - OC.



R198 91





**Valves:** (V1) ECC85; (V3) ECH81; (V4) EBF89; (V5) EB91; (V6) ECL86; (V7) EZ81; (V8) ECL86. Typical voltages shown on circuit.

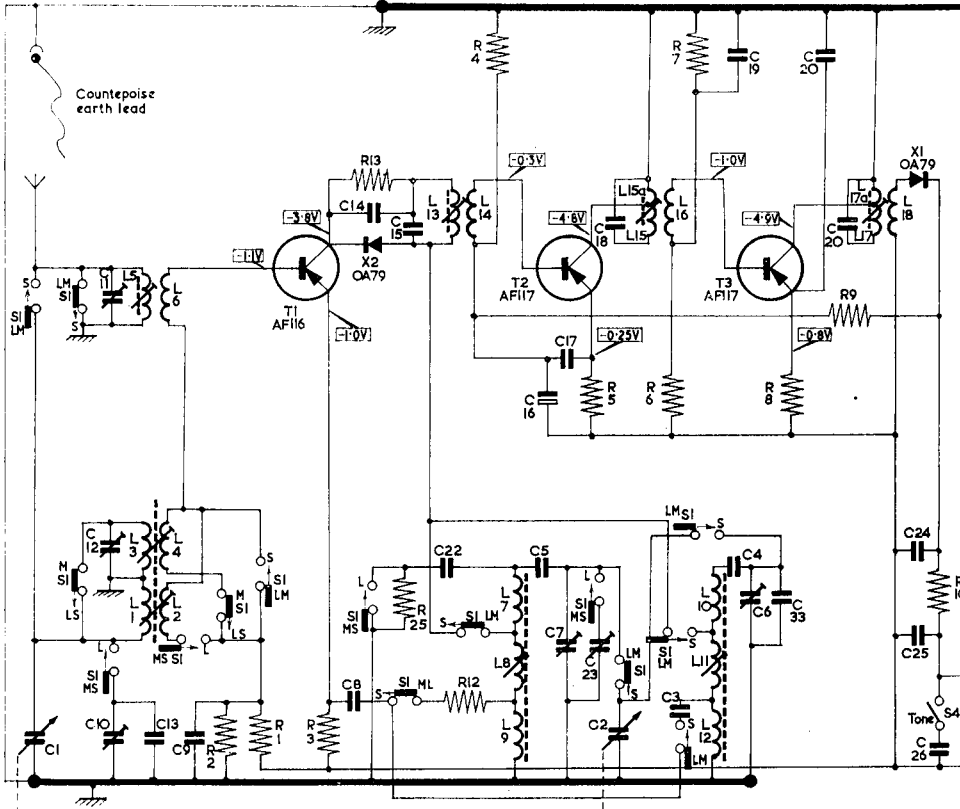
**Notes:** Dial lamps two 6.5-volt, 0.3-amp. M.E.S. Gram light (520A, 522A only) 240-250-volt, 15-watt, S.E.S. F65-68 are Ferroxcube beads.

**Alignment Frequencies:** I.F. (F.M.) 10.7 Mc/s. (L18, L19/L20, L14, L15, L8, L41). R.F. 100 Mc/s. (C16, C10); 87.5 Mc/s. (L6, L5); 94 Mc/s. (C8). I.F. (A.M.) 470 kc/s. (L22, L21, L17, L16). M.W. 1620 kc/s. (C58, C32). L.W. 190 kc/s. (C65, L32).

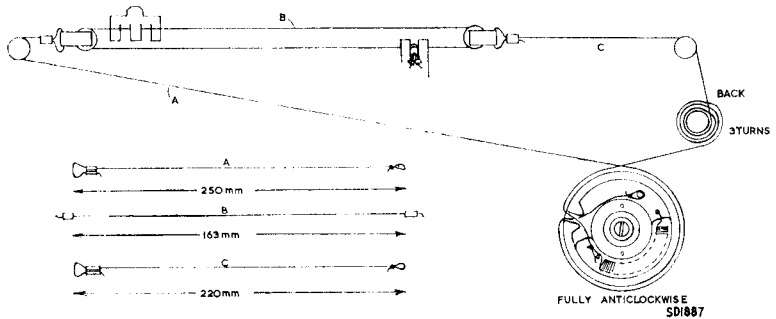
**Dismantling:** *To remove chassis (520A, 522A).* Remove control knobs, chassis compartment back and base plates. Release gram lamp lead, balance control (two lower screws) and aerial panel. Detach internal aerial, motor mains plug and disconnect four speaker leads at connectors. Turn receiver face down on a protected surface and withdraw four chassis retaining screws (rubber mounted). Right receiver, lift rear of chassis to enable push buttons to clear cabinet, then withdraw chassis. To remove chassis completely, pick-up leads must be unplugged from socket beneath record changer; tape panel and gram lamp leads must also be detached. *To remove chassis (521A).* Remove control knobs and chassis compartment back plate, then release balance control (two lower screws), aerial and tape panels. Detach internal F.M. aerial, motor mains plug and release pick-up leads from their clamp. Disconnect four speaker leads at connectors then withdrawn four (rubber mounted) retaining screws from chassis mounting brackets. Lift rear of chassis to enable push buttons to clear cabinet, then withdraw chassis. To remove chassis completely, unplug pick-up leads from socket beneath record changer, detach tape panel and lamp lead. *To remove record changer (all models).* Detach motor mains plug from receiver chassis and release motor mains lead from cable clamp. Remove four nylon fixing bushes from changer top plate, lift unit up, detach pick-up lead plug, then withdraw changer.

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

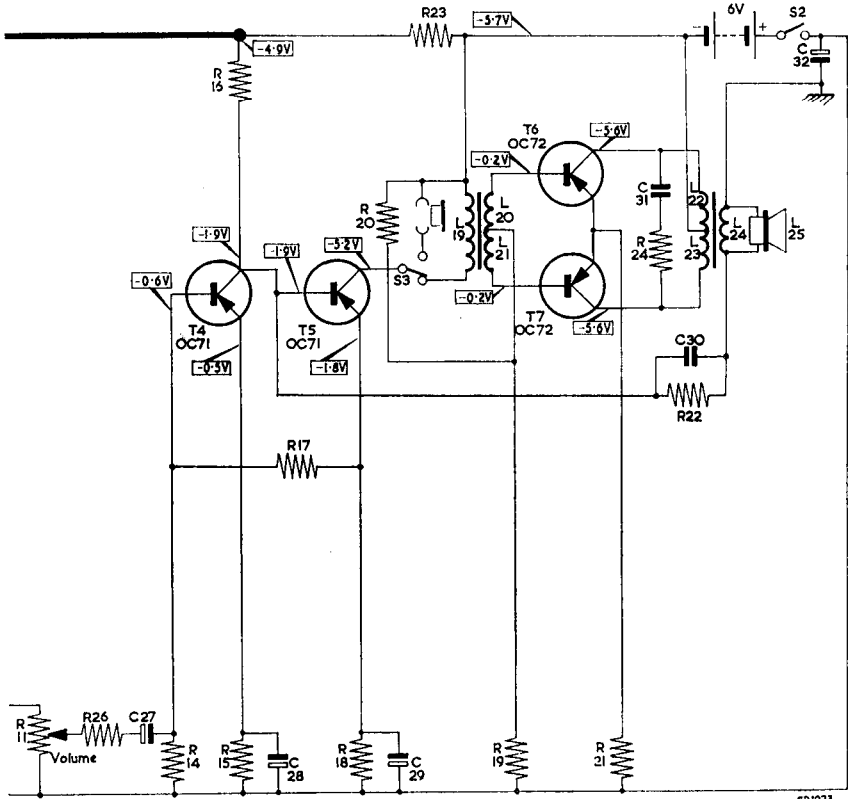


<i>Capacitors.</i>			
C3	2,200 pF. (10%)	C8	10,000 pF. (10%)
C4	3,900 pF. (10%)	C9	15,000 pF. (10%)
C5	270 pF. (1%)	C10	10 pF.
C6	10 pF.	C11	10 pF.
C7	10 pF.	C12	12 pF.
		C13	108 pF. (1%)
		C14	10,000 pF. (10%)
		C16	6.4
		C17	47,000 pF. (10%)
		C19	10,000 pF. (10%)
		C20	47,000 pF. (10%)
		C22	232 pF. (1%)
		C23	10 pF.
		C24	3,700 pF.
		C25	3,700 pF.
		C26	47,000 pF. (10%)
		C27	10
		C28	25



FULLY ANTICLOCKWISE  
SD1887

CIRCUIT DIAGRAM—PHILIPS MODEL L2X10T/15



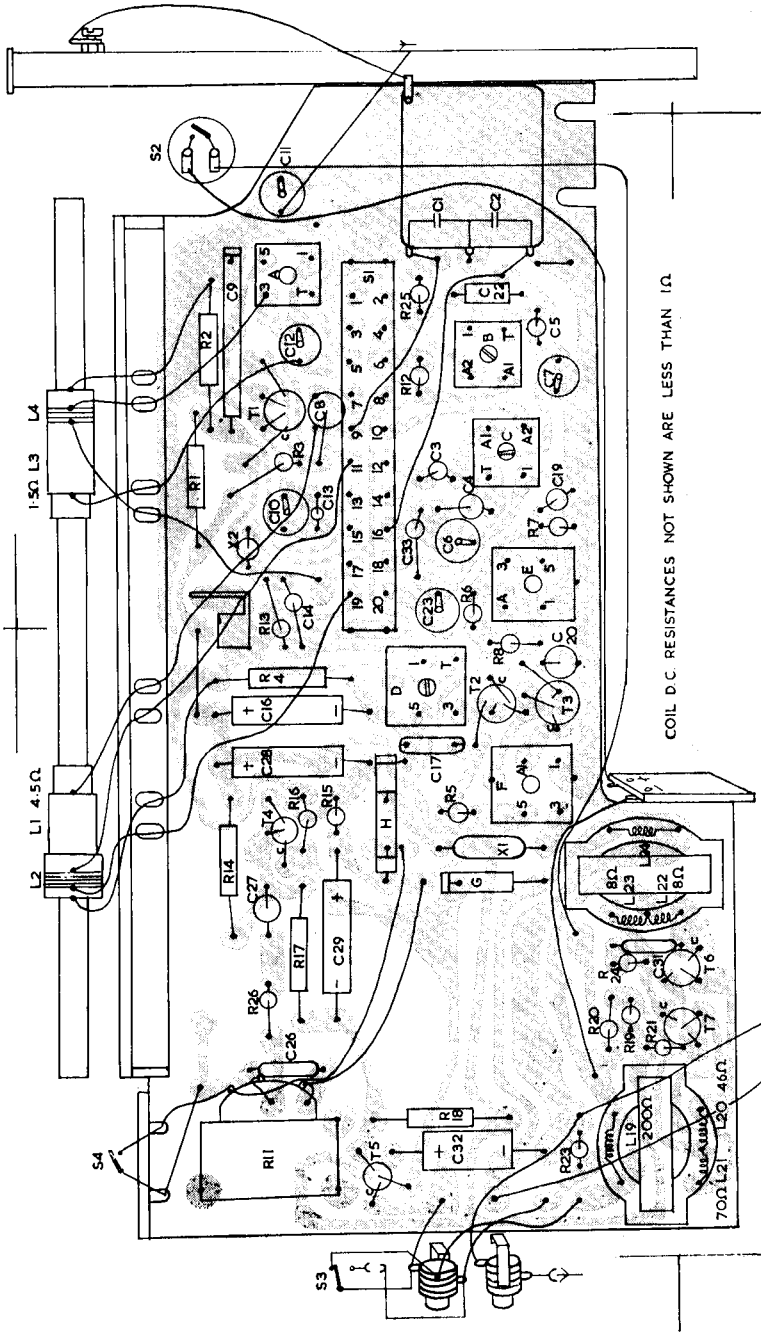
SD1973

C29	16	<i>Resistors.</i>		R7	15k	R14	15k (5%)	R21	10
C30	390 pF.	R1	2.7k	R8	1k	R15	820 (5%)	R22	33k
C31	47,000 pF. (10%)	R2	8.2k	R9	15k	R16	4.7k (5%)	R23	220
C32	200	R3	1.2k	R10	1k	R17	22k (5%)	R24	270
C33	15 pF. (10%)	R4	120k	R11	10k (log.)	R18	1k	R25	180k
		R5	560 (5%)	R12	22	R19	100 (5%)	R26	1.5k
		R6	4.7k	R13	1.2k	R20	3k (5%)		

kc/s. (C12); 5.8 Mc/s. (L5/6); 15.2 Mc/s. (C11).

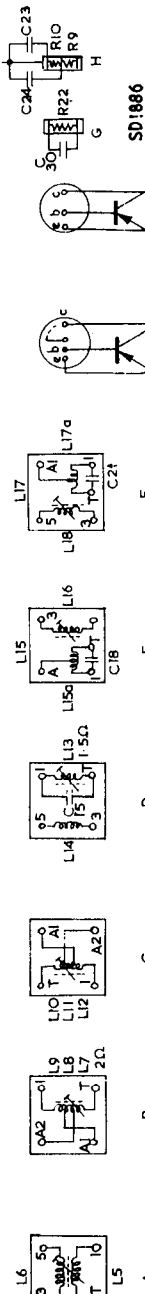
**Dismantling:** Place set face downwards on soft cloth. Remove two screws at back of set. Unscrew wavechange knob, remove two screws above tuning knob and two screws above volume control. Battery compartment flap may now be removed and front section of cabinet lifted away. When recasing it is important to ensure that locating lugs and sockets on their respective mouldings interlock correctly. *To remove chassis.* Unsolder battery negative, speaker and S4 leads. Undo locking nuts and remove two sockets. Unsolder leads to telescopic aerial and panel end of red lead to S2. After removing two screws (one below gang, other above volume control) chassis may be lifted clear.

(Lay-out see over page)



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

COMPONENT LAY-OUT DIAGRAM—PHILIPS MODEL L2X10T/15



SD1886