

SERVICE INFORMATION FOR THE PHILIPS PORTABLE RECEIVER—L3G23T



INTRODUCTION

The L3G23T is a M.W.-L.W. battery operated portable radio receiver. Six transistors and one crystal diode are used. Sockets are provided for the connection of car radio aerial, headphones and tape recorder.

TRANSISTOR COMBINATION

T1	AF117	Frequency changer.
T2	AF117	I.F. Amplifier.
T3	OC71	Detector.
T4	OC81D	Audio Driver.
T5	OC81	Push pull output (Matched Pair).
T6	OC81	
X1	OA70	A.G.C. rectifier.

BATTERY SUPPLIES

2×9V D.C., i.e. two of the following battery types:—
Ever Ready PP7, Vidor T6007 or Exide DT7.

CONSUMPTION

With an "on load" supply voltage of 18 volts and no signal input the current consumption should be 15mA average.

WAVEBAND RANGES

M.W. 187-555 metres.
L.W. 1215-2000 metres.

OUTPUT

800 mW approx.

TRIMMING FREQUENCIES

I.F. 470 Kc/s.
M.W. 537 Kc/s, 632 Kc/s, 1450 Kc/s, 1610 Kc/s.
L.W. 180 Kc/s.

CABINET DIMENSIONS

Depth 3 $\frac{3}{8}$ in. Height 7 $\frac{7}{8}$ in. Length 11 in.

WEIGHT

4 $\frac{1}{2}$ lbs.

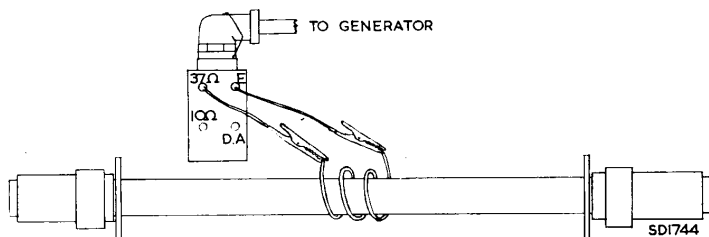
REMOVING THE CABINET

Place the receiver face downwards on a soft cloth, release the two captive retaining screws and lift off the cabinet back. Take out the batteries and battery housing (3 screws) and release the aerial socket plate. The wooden cabinet is now only held by four corner screws.

To detach the receiver from front moulding pull off the volume and tuning knobs and extract the four chassis fixing screws. Withdraw the audio panel from its slot housing and then prise off the eight speaker clips. The receiver may now be lifted complete from the front moulding.

RELEASING THE I.F. PANEL

To gain access to the underside of the I.F. panel, release the bracket attaching panel to the main chassis (nearest the volume control). Remove this bracket and then pull panel from the second bracket. To enable the I.F. panel to be turned over the audio panel must be withdrawn from its housing.



CONNECTIONS FOR R.F. TRIMMING

OFFICIAL SERVICE AGENT:—

AMALGAMATED ELECTRIC SERVICES LTD.

WADDON FACTORY ESTATE

CROYDON

SURREY

Telephone

CROYDON 7722

TRIMMING INSTRUCTIONS

Pointer Setting

Turn gang to maximum and adjust pointer to the 'I' in ALL-OUIS on the station scale.

General

(a) Output should be observed with an output meter set for a 30Ω load, trimming level 50mW. Alternatively an A.C. Voltmeter (2.5V range) with a 30Ω resistor in parallel may be used, trimming level 1-1½V. In either case the loudspeaker must be replaced by the meter in use. Set V/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 output from the generator should be connected to this coil (see diagram).

(c) If 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 the end of a plastic knitting needle (size 10).

I.F. trimming

Switch to M.W., turn gang to min. capacity and apply a modulated signal of 470 Kc/s to the alignment point via a 470 KpF capacitor. (See circuit and layout diagrams). Trim L13, L10/11, L8/9 in that order for max. output.

M.W. trimming

(a) Oscillator

Switch to M.W., turn gang to max. capacity and apply a signal of 537 Kc/s to the alignment point via a 470KpF capacitor. Trim L6 for max. output.

Change the input frequency to 1610Kc/s and turn gang so that the pointer lines up with the left hand scale marker.

Adjust C10 for max. output. Repeat as necessary.

(b) R.F. Circuits

Apply a signal of 632 Kc/s to the alignment point via a 470 KpF capacitor and tune gang for max. output. Transfer the generator output leads to a coupling coil added to the ferrite rod. Adjust L3/4 for maximum output.

Change the generator frequency to 1450 Kc/s and, maintaining the input position, tune the gang for maximum and trim C11 for max. output.

L.W. trimming

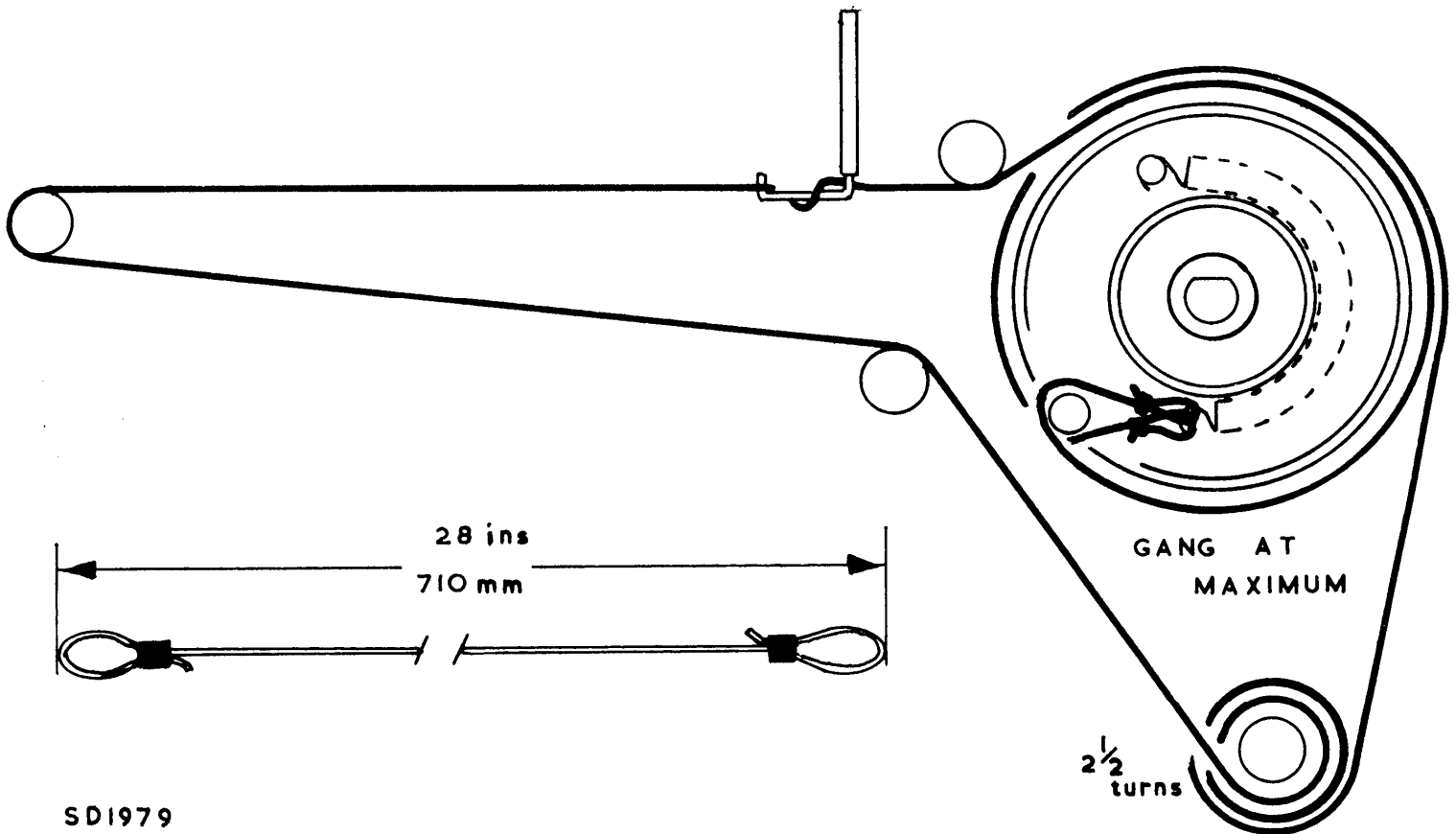
(a) Oscillator

Inject a signal of 180 Kc/s at the alignment point via a 470 KpF capacitor, switch to L.W. and set the pointer to the corresponding scale marker.

Adjust C8 for max. output.

(b) R/F Circuits

With the pointer position unaltered connect the generator to the coupling coil and set it to 180 Kc/s. Adjust L1/2 for maximum output.

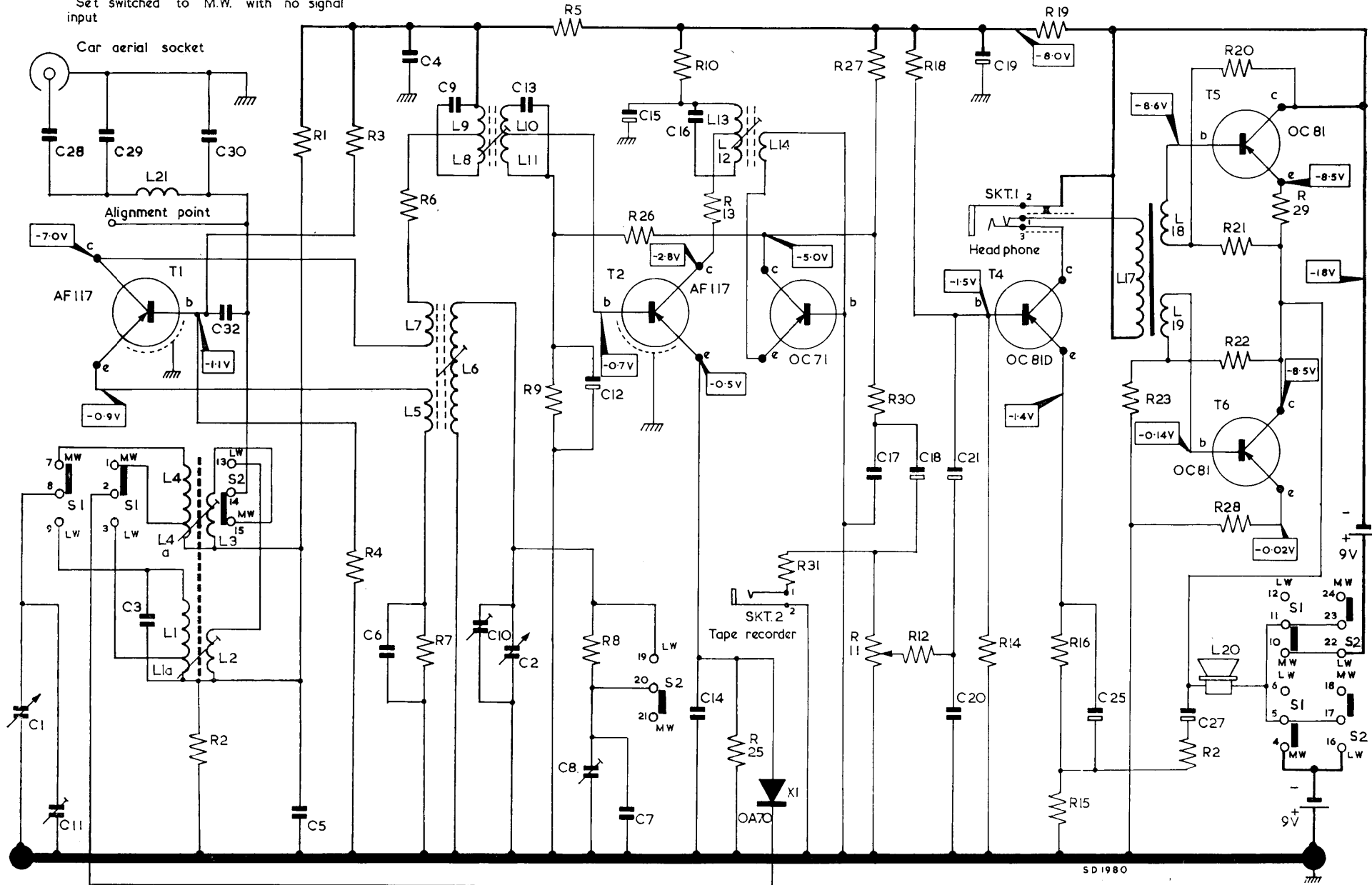


SD1979

DRIVE CORD ARRANGEMENT

21.		44a. 3.		5. 7. 6.		98.10.11.		12.13. 14.		17. 18.		19. 20.		L																																	
28.		29.		30.		32.		4.		9.		13.		15.		16.		19.		C																											
1.		11.		3.		5.		6.		10.		2.		12.		7.		14.		17.		18.		21.		19.		25.		27.		R															
				2.		4.		7.		9.		5.		8.		26.		10.		13.		27.		18.		11.		30.		12.		14.		19.		16.		23.		2.		20.		21.		29.	

All voltages taken with respect to chassis using a 10M Ω impedance V.V. meter.
Set switched to M.W. with no signal input

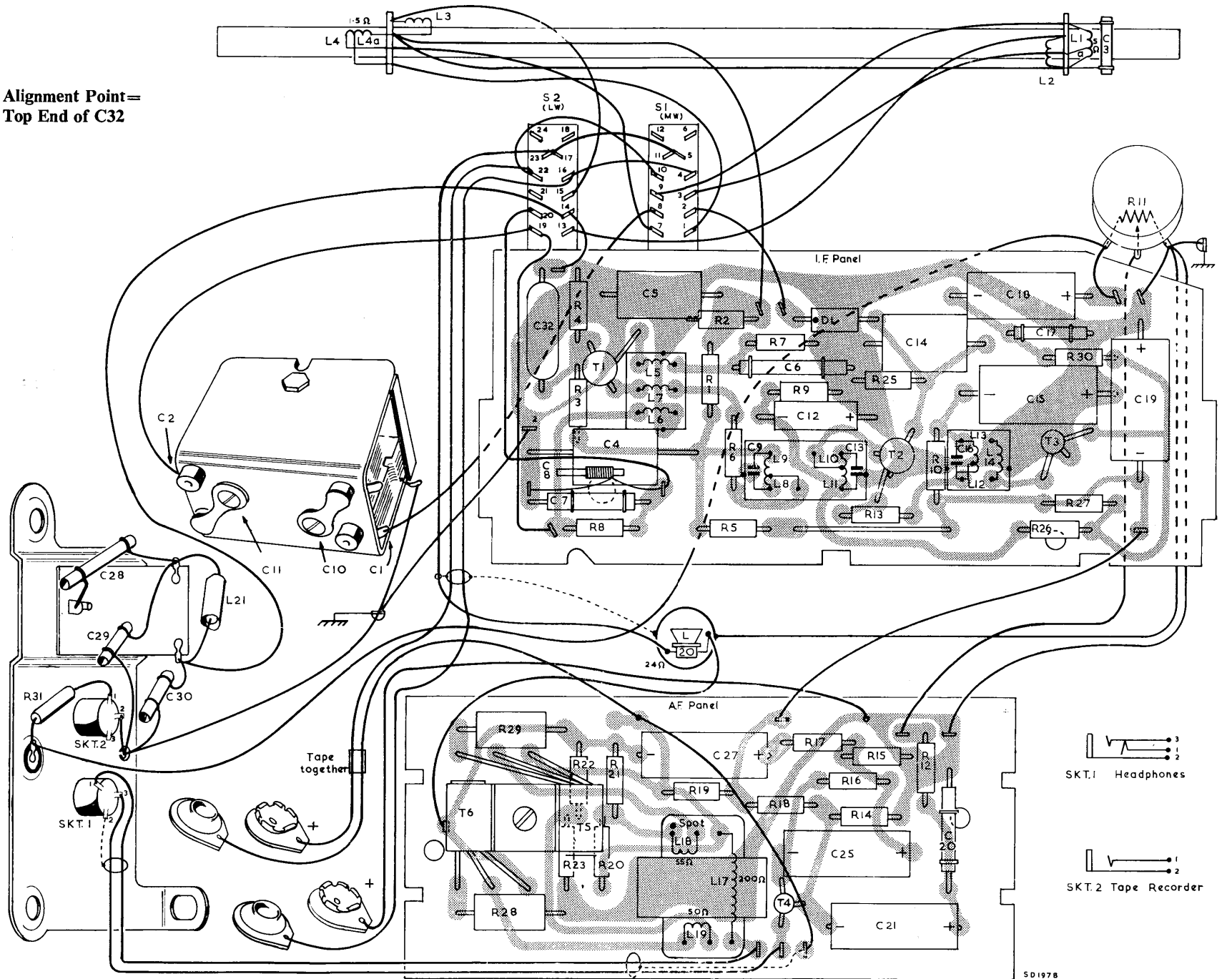


CIRCUIT DIAGRAM

SD 1980

L		21.		4. 4a.	3.		5.76	19,20,19,17.	9.8.	10,11.	12,13. 14.	2. 1.1a.	L		
C		29,28.	30. 2.	11.	10.	1.		32. 7.8.	4. 5.	27. 9. 6.	12. 25,13.	14. 20,16.	18. 17,15.	3. 19.	C
R		31.						29. 28.	4.3. 8.	1.2,6.5.	7. 9.	10.	26. 30,27.	11.	R
									23,22,20,21.	19.	18. 17.	16,14,15.	12.		

Alignment Point=
Top End of C32



501978

LAYOUT DIAGRAM

SPARE PARTS LIST

CABINET ASSEMBLY

Cabinet—Blue	...	...	...	...	MK.997.04
Cabinet—Red	...	...	...	...	MK.988.94
Plastic foot (4)	...	...	...	...	MK.910.34
Front moulding assembly	...	...	...	...	MK.990.75
Bracket for above (4)	...	...	...	...	MK.083.44
Station scale	...	...	...	...	MK.707.86
Window for pointer	...	...	...	...	MK.922.63
" Philips " fingerplate	...	...	...	...	MK.992.32
Backplate—Red	...	...	...	...	MK.989.84
Backplate—Blue	...	...	...	...	MK.989.87
Foam battery pad for above	...	...	...	...	MK.965.56
Fixing screw for backplate (2)	...	...	...	...	MK.962.22
Retaining washer for above (2)	...	...	...	...	MK.450.61
Handle	...	...	...	...	HY.097.03
Fibre strip—small holes	...	...	...	...	MK.683.12
Fibre strip—large holes	...	...	...	...	MK.683.13
Escutcheon for push-buttons	...	...	...	...	MK.992.28
Fixing pins for above (2)	...	...	...	...	A3.314.02
Escutcheon for sockets	...	...	...	...	MK.992.33
Indicator plate—sockets	...	...	...	...	MK.309.76

PUSH BUTTON SWITCH AND CONTROL KNOBS etc.

Push button switch assembly	...	...	...	...	MK.967.50
Push button—off	...	...	...	...	MK.993.56
Push button—M.W.	...	...	...	...	MK.993.57
Push button—L.W.	...	...	...	...	MK.993.58
Tuning knob	...	...	...	...	MK.857.86
Spring for above	...	...	...	...	MK.990.85
Felt washer	...	...	...	...	Deleted
Volume knob	...	...	...	...	MK.857.88
Spring for above	...	...	...	...	MK.955.56

POINTER DRIVE ASSEMBLY

Drive drum	...	...	...	...	MK.963.16
Spring for above	...	...	...	...	MK.750.90
Pointer assembly	...	...	...	...	MK.989.93
Tension spring	...	...	...	...	MK.740.56
Drive cord	...	...	...	...	K229.ZZ/923
Bushes for above (2)	...	...	...	...	B.002.AF/1.9
Pulley (3)	...	...	...	...	A3.680.02
Circlip (3)	...	...	...	...	B.108.AF/1.9
Pulley mounting pin (3)	...	...	...	...	MK.617.06
Tuning spindle	...	...	...	...	MK.004.66
Bracket for spindle	...	...	...	...	MK.037.20
Rivets for above	...	...	...	...	B.002.AF/3 × 4

PRINTED PANELS ETC.

I.F. panel	...	...	...	...	HY.129.10
A.F. panel	...	...	...	...	HY.129.11
R.H. bracket for printed panels	...	...	...	...	MK.083.42
L.H. bracket for printed panels	...	...	...	...	MK.083.41
Heat sink	...	...	...	...	MK.081.07
Tags for printed panels	...	...	...	...	A3.320.36
Rubber bands for A.F. panel (2)	...	...	...	...	MK.450.63

MISCELLANEOUS

Socket for earphone	...	...	...	...	MK.967.67
Socket for tape	...	...	...	...	MK.967.62

CAPACITORS

	Value	Permitted Tolerance %	
C1/2	Gang	...	MK.211.14
C3	Ceramic	68pF	HT.930.55
C4	Polyester	0.15uF	C.296.AA/A150K
C5	Polyester	0.1uF	906/L100K
C6	Polyester	18,000pF	906/L18K
C7	Ceramic	180pF	HT.930.99
C8	Trimmer	100pF	49.005.51
C9	...	...	In L8—11
C10 & 11	Trimmers	2-30pF	On C1—2
C12	Electrolytic	10uF	909/C12.5
C13	...	...	In L8—11
C14	Polyester	0.15uF	C.296.AA/A150K
C15	Electrolytic	160uF	C.426.AM/D160
C15†	Electrolytic	100uF	909/W100
C16	...	...	In L12—14
C17	Ceramic	3,900pF	C.301.AA/H3K9
C18	Electrolytic	50uF	909/B50
C19	Electrolytic	160uF	C.426.AM/D160
C19†	Electrolytic	100uF	909/W100
C20	Ceramic	4,700pF	904/4K7
C21	Electrolytic	1uF	909/D1
C25	Electrolytic	160uF	C.426.AM/D160
C27	Electrolytic	1uF	909/D1
C28	Ceramic	10,000pF	MK.206.10
C29	Ceramic	15pF	HT.930.17/B15E
C30	Ceramic	15pF	HT.930.17/B15E
C32	Polyester	8,200pF	C.296.AC/A8K2

Special nut for sockets	...	...	...	...	MK.927.41
Washer for above	...	...	...	...	MK.451.10
Socket plate assembly	...	...	...	...	MK.998.06
Aerial socket only	...	...	...	...	MK.989.82
Battery housing	...	...	...	...	MK.242.80
Battery connector—negative	...	...	...	...	MK.966.84
Battery connector—positive	...	...	...	...	MK.966.85
Rectangular clip (4)	...	...	...	...	MK.926.63
Folded clip (4)	...	...	...	...	MK.751.68
Slewing	...	...	...	...	K558.LB/Size.
Fixing nut for potentiometer	...	...	...	...	MK.927.05
Mounting grommet for gang (3)	...	...	...	...	08.008.73
Distance piece for above (3)	...	...	...	...	B.001.AC/4.1 × 6 × 4.5
Licence plate	...	...	...	...	MK.707.29
Type label	...	...	...	...	MK.706.42
Screened battery lead—red	...	...	...	...	R.903.KA/800C
Screened battery lead—black	...	...	...	...	R.903.KA/800A
Car radio aerial plug	...	...	...	...	MK.931.35
Tape output plug	...	...	...	...	42131
Twin-screened lead for headphone socket	...	...	...	...	R.292.KN/01FJ9
Rod aerial supports (2)	...	...	...	...	MK.282.13

TRANSISTORS etc.

T1	AF117
T2	AF117
T3	OC71
T4	OC81
T5	OC81
T6	Matched Pair	OC81

Diode

X1	OA70
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TRANSFORMERS AND COILS etc.

L1-2	Aerial Coil M.W.	MK.570.21
L3-4	Aerial Coil L.W.	MK.570.22
L5-7	Oscillator Coil	...	...	...	MK.570.23
L8-11	1st I.F. Coil	...	...	...	MK.570.24
L12-14	2nd I.F. Coil	...	...	...	MK.570.27
L17-19	Driver Transformer	...	...	...	MK.516.10
L20	Loudspeaker	...	...	...	ND.2346.HX
L21	Choke	...	...	...	MK.550.29

Cores for Coils etc.

L5, 8, 12	...	...	...	...	K5.120.00
Rod for aerial coils	...	...	...	...	MK.425.06

ACCESSORIES

*Headphone—complete	...	...	...	...	AF.9110/11
Capsule	...	...	...	...	EL.3593/07
Nylon ear-loop	...	...	...	...	A3.053.88
Lead and plug assembly	...	...	...	...	A3.814.43
Plug—only	...	...	...	...	42131

* This accessory is obtainable from :—

**Philips Electrical Limited,
Century House,
Shaftesbury Ave., London, W.C.2.**

RESISTORS

	Wattage	Permitted Tolerance %	
R1	8,200Ω	10	48.426.10/8K2
R2	390Ω	10	48.426.10/390E
R3	33,000Ω	10	48.426.10/33K
R4	6,800Ω	10	48.426.10/6K8
R5	100Ω	10	48.426.10/100E
R6	390Ω	10	48.426.10/390E
R7	1,000Ω	10	48.426.10/1K
R8	68,000Ω	10	48.426.10/68K
R9	10,000Ω	10	48.426.10/10K
R10	2,200Ω	10	48.426.10/2K2
R11	Volume Control 50,000Ω	Log Law	MK.812.14
R12	470Ω	10	48.426.10/470E
R13	180Ω	10	48.426.10/180E
R14	18,000Ω	10	48.426.10/18K
R15	15Ω	10	48.426.10/15E
R16	1,000Ω	10	48.426.10/1K
R17	2,200Ω	10	48.426.10/2K2
R18	56,000Ω	10	48.426.10/56K
R19	2,200Ω	10	48.426.10/2K2
R20	2,700Ω	5	48.426.05/2K7
R21	56Ω	5	48.426.05/56E
R22	2,700Ω	5	48.426.05/2K7
R23	56Ω	5	48.426.05/56E
R25	270Ω	10	48.426.10/270E
R26	47,000Ω	10	48.426.10/47K
R27	27,000Ω	10	48.426.10/27K
R28	Wirewound 5.1Ω	5	MK.792.06
R29	Wirewound 5.1Ω	5	MK.792.06
R30	4,700Ω	10	48.426.10/4K7
R31	47,000Ω	10	48.426.10/47K

SERVICE INFORMATION FOR THE

PHILIPS

RADIO RECEIVERS

TYPE L3G23T/O1F AND /O1C

Apart from cabinet colour schemes, these receivers are identical to the model L3G23T for which service information has been previously issued. The cabinet colours are: two-tone green, suffix /O1F and two-tone brown, suffix /O1C. Spare parts are as for the L3G23T with the following exceptions:

CABINET ASSEMBLY

Cabinet wood—green (/O1F)	..	..	..	..	MK.839.75
Cabinet wood—brown (/O1C)	..	..	..	..	MK.839.73
Backplate—green (/O1F)	..	..	..	..	MK.841.18
Backplate—brown (/O1C)	..	..	..	..	MK.841.16
Screw (2)	} for above	..	..	..	} MK.962.22
Circlip (2)					
Battery type label	MK.708.37
Station scale	..	..	..	..	MK.708.43

OFFICIAL SERVICE AGENT :—

AMALGAMATED ELECTRIC SERVICES LTD.

WADDON FACTORY ESTATE

CROYDON

SURREY

Telephone

CROYDON 7722