

SERVICE INFORMATION FOR THE

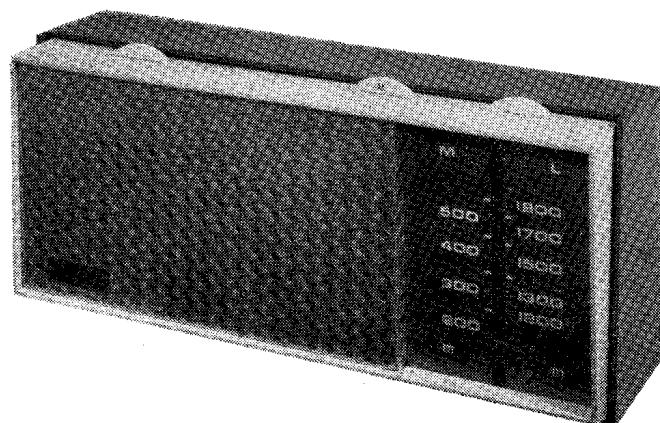
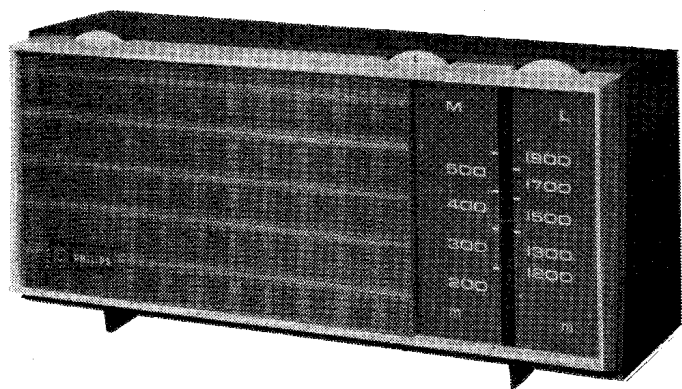
PHILIPS

I3RB262

Stella

ST4500

RADIO RECEIVERS



COMBINED ELECTRONIC SERVICES LTD.
QUEENSWAY WADDON FACTORY ESTATE CROYDON CR9 4DR

TELEPHONES :

Spare part orders : 01-686 7311

General service enquiries : 01-688 7722

AFTER BUSINESS HOURS : Recorded messages on both lines

Telex 262308

MARCH, 1968

(Please quote CES 672 when ordering further copies)

CES 672

INTRODUCTION

The 13RB262 and ST4500 are compact, mains operated, transistor radios of similar specification, housed in neat, modern styled, moulded cabinets. Medium and long wave reception is provided by a micro-technique chassis employing 6 transistors, 2 diodes and a rectifier. High sensitivity and a good signal to noise ratio are achieved by using a large ferrite rod aerial and high gain tuned circuits.

SPECIFICATION

Power supply	200-240 volts A.C., 50Hz
Power consumption	4 watts
Power output	200mW
Loudspeaker	5" x 3" elliptical, 8Ω impedance
Waveband ranges	M.W. 185-571 metres (1622-525kHz) L.W. 1175-2000 metres (255-150kHz)
Intermediate frequency	470kHz
Semi-conductors	
	<i>Type</i> <i>Function</i>
T1	AF117 Mixer/oscillator
T2	AF117 1st I.F. amplifier
T3	AF117 2nd I.F. amplifier
T4	AC128 A.F. Driver
T5-T6	AC128 Push-pull output
X1	OA70 Detector and A.G.C. diode
X2	OAZ202 Zener stabilising diode
MR1	S.T.C.-S7 Rectifier
Dimensions	Width 10"; Height 4 $\frac{3}{4}$ "; Depth 3 $\frac{1}{4}$ "

DISMANTLING

(a) Removing the cabinet rear

Place the receiver face downwards on a soft protective surface and remove the two retaining screws from the rear of the cabinet. Ease the mains lead through the cabinet rear, which can be lifted clear. The component side of the printed panel and the power supply chassis are then readily accessible.

(b) Releasing the printed panel

Remove the three panel securing screws, two at the top adjacent to the ferrite rod and one at the bottom on the paxolin panel. The complete panel assembly may now be lifted clear of the front moulding, giving access to the print side of the panel and the drive cord assembly.

(c) Releasing the power supply chassis

Remove the three retaining screws, one from the top next to the volume control and two from the bottom adjacent to the mains transformer. The power supply chassis may now be lifted clear of the front moulding.

(d) Releasing the loudspeaker

Care should be taken not to break the moulded lugs. Carefully ease off the four spire clips and rubber washers. The loudspeaker may now be lifted from the front moulding.*

(e) Releasing the loudspeaker grille

Remove the printed panel, power supply chassis and loudspeaker as described above. Carefully remove the four spire clips and rubber washers from the moulded lugs. The loudspeaker grille will then drop from the front moulding.*

(f) Releasing the station scale

Remove the printed panel as described above. Carefully remove the two spire clips and rubber washers from the clear moulding lugs of the station scale backplate. Ease the scale from the front moulding and out from under the loudspeaker grille.

*Note. When refitting the loudspeaker, grille or station scale, ensure that the rubber washers are also replaced.

TRIMMING INSTRUCTIONS

General

(a) Output should be observed on an output meter set for 8Ω load impedance; trimming level 50mW. Alternatively, an a.c. voltmeter (2.5V range) with an 8Ω resistor in parallel may be used; trimming level 0.75V. In either case, the loudspeaker should be disconnected and the output meter or voltmeter and resistor connected in its place. Set the volume control to maximum.

(b) When trimming the aerial circuits, the generator should be loosely coupled to the receiver. A suitable coupling may be made by looping a single turn of wire, approximately 12" long, around the receiver and connecting the ends of the loop to a low impedance output from the generator.

(c) For trim plan, see Fig. 1.

I.F. trimming

1. Switch to M.W. and turn the gang to minimum capacity (tuning knob fully clockwise).
2. Apply a signal of 470kHz to the trimming point provided (see Fig. 4) via a 470KpF capacitor.
3. Trim L10, L8 and L6 in that order for maximum output.

Oscillator trimming

1. Connect the generator to the trimming point provided (see Fig. 4) via a 470KpF capacitor.
2. Switch to L.W. and turn the gang to maximum capacity (tuning knob fully anticlockwise).
3. Apply a signal of 148kHz and trim L4 for maximum output.
4. Switch to M.W. and turn the gang to minimum capacity (tuning knob fully clockwise).
5. Apply a signal of 1630kHz and trim C27 for maximum output.
6. Repeat as necessary.

Aerial trimming

1. Connect the generator to the coupling loop.
2. Switch to L.W., apply a signal of 190kHz and tune the receiver to this frequency.
3. Adjust the position of L3/L14 for maximum output.
4. Switch to M.W., apply a signal of 525kHz and tune the receiver to this frequency.
5. Adjust the position of L1/L2 for maximum output.
6. Apply a signal of 1300kHz and tune the receiver to this frequency.
7. Trim C28 for maximum output.
8. Repeat as necessary.

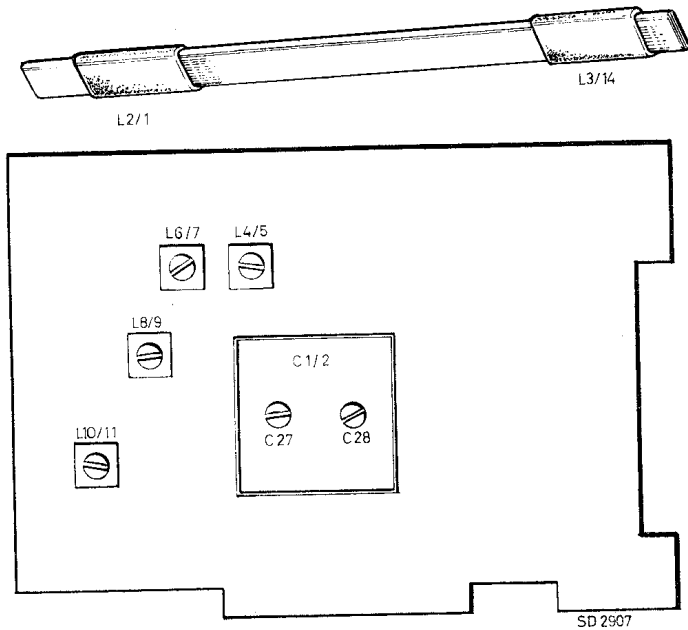


Fig. 1 TRIM PLAN

REPLACING THE DRIVE CORD

A pair of tweezers or long-nosed pliers will greatly assist this operation. Detach the old cord and pointer and make up and fit the new cord as shown in Fig. 2. With the chassis viewed from the print side of the panel and the ferrite rod assembly to the front, turn the gang to minimum capacity (drive drum fully anticlockwise). Anchor the cord round the post of the drive drum and under one leg of the tension spring. Lead the cord out through the drum aperture, pass it anticlockwise round the outside of the drum, up to the tuning spindle, and wind on $2\frac{1}{2}$ turns clockwise, winding from bottom to top. Take the cord up to and clockwise round support pillar A, anticlockwise round the drive drum and back through the aperture in the drum rim. Compress the tension spring and anchor the cord loop onto the 'V' in the other leg of the tension spring.

Pointer setting

Turn the drum to its fully clockwise position (tuning knob fully anticlockwise). Attach the pointer to the cord and align it with the notch in the scale backing plate, adjacent to the tuning knob.

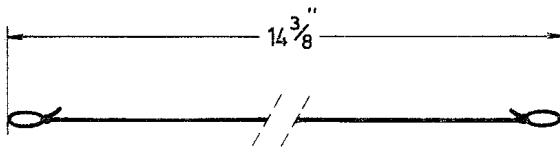
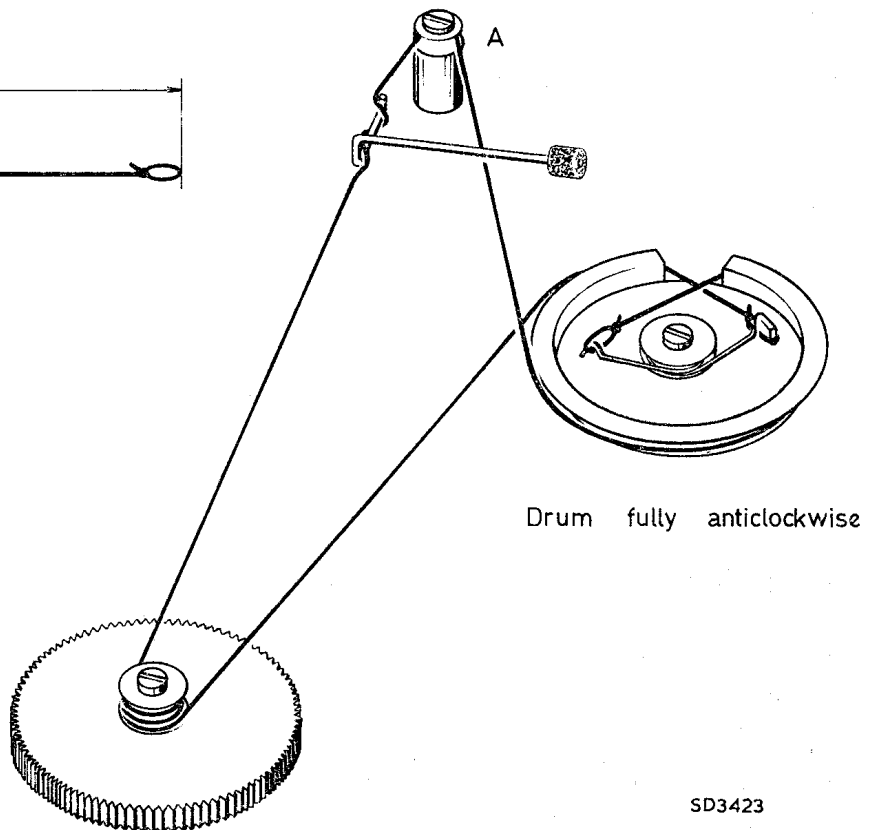
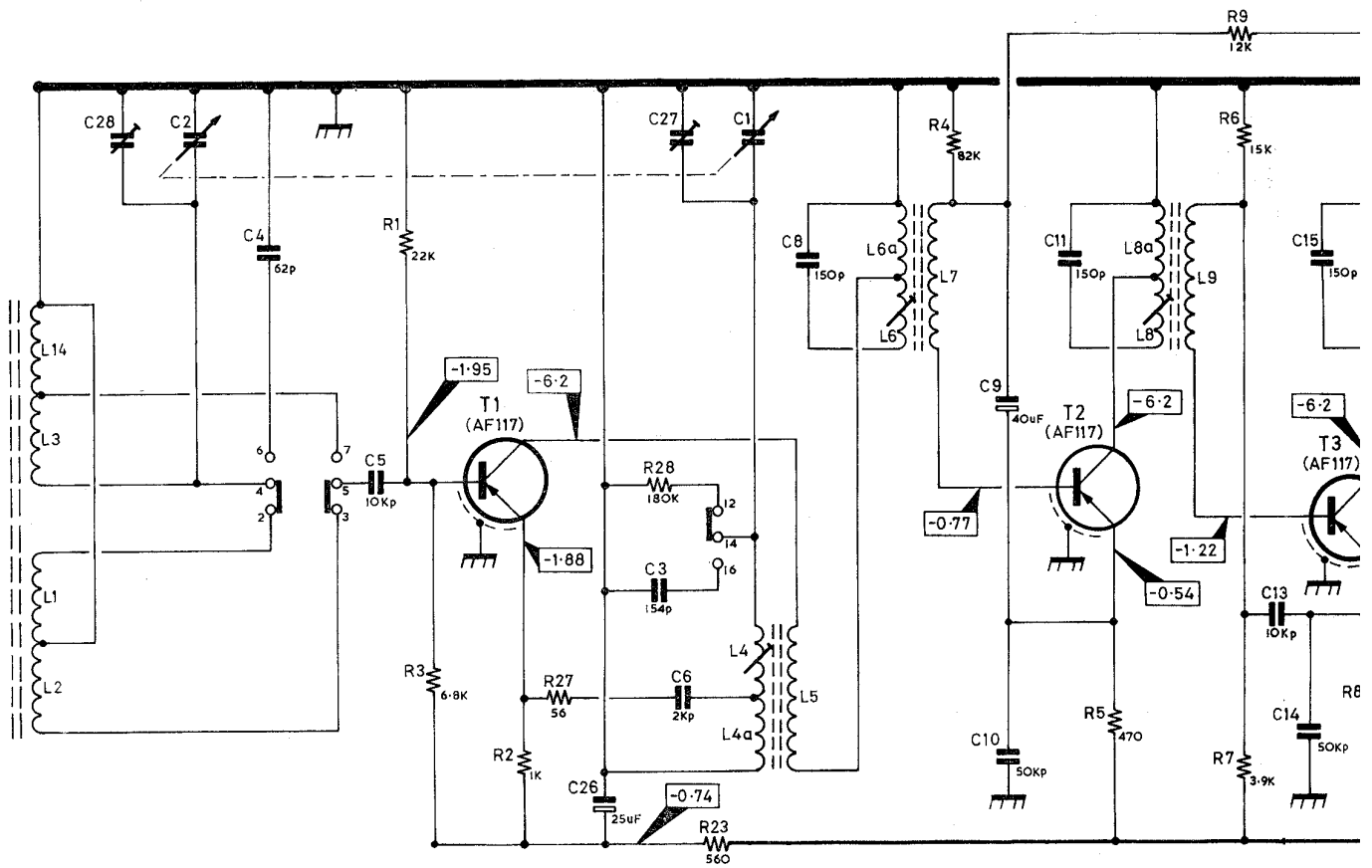


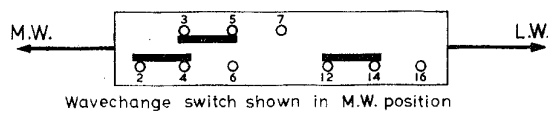
Fig. 2 CORD DRIVE



L	14. 3. 12.							4. 4a.	5. 6.	6a. 7.		8a. 8. 9.				
C		28.	2.	4.	5.			26.	3.	27. 6.	1.	8.	9.	11.	15.	
R					1.	3.	2.	27.	28.	23.		4.		5.	9. 6. 7.	13. 14.
MISC								T1.						T2.		T3.



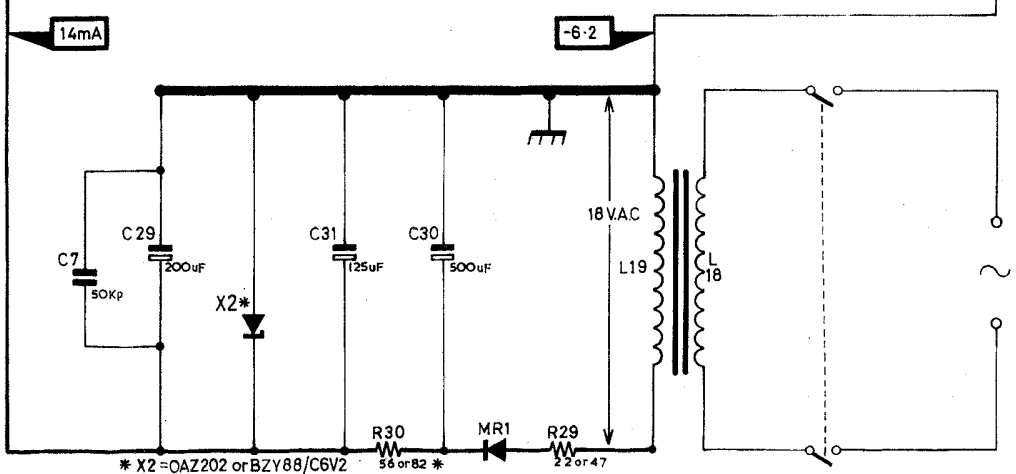
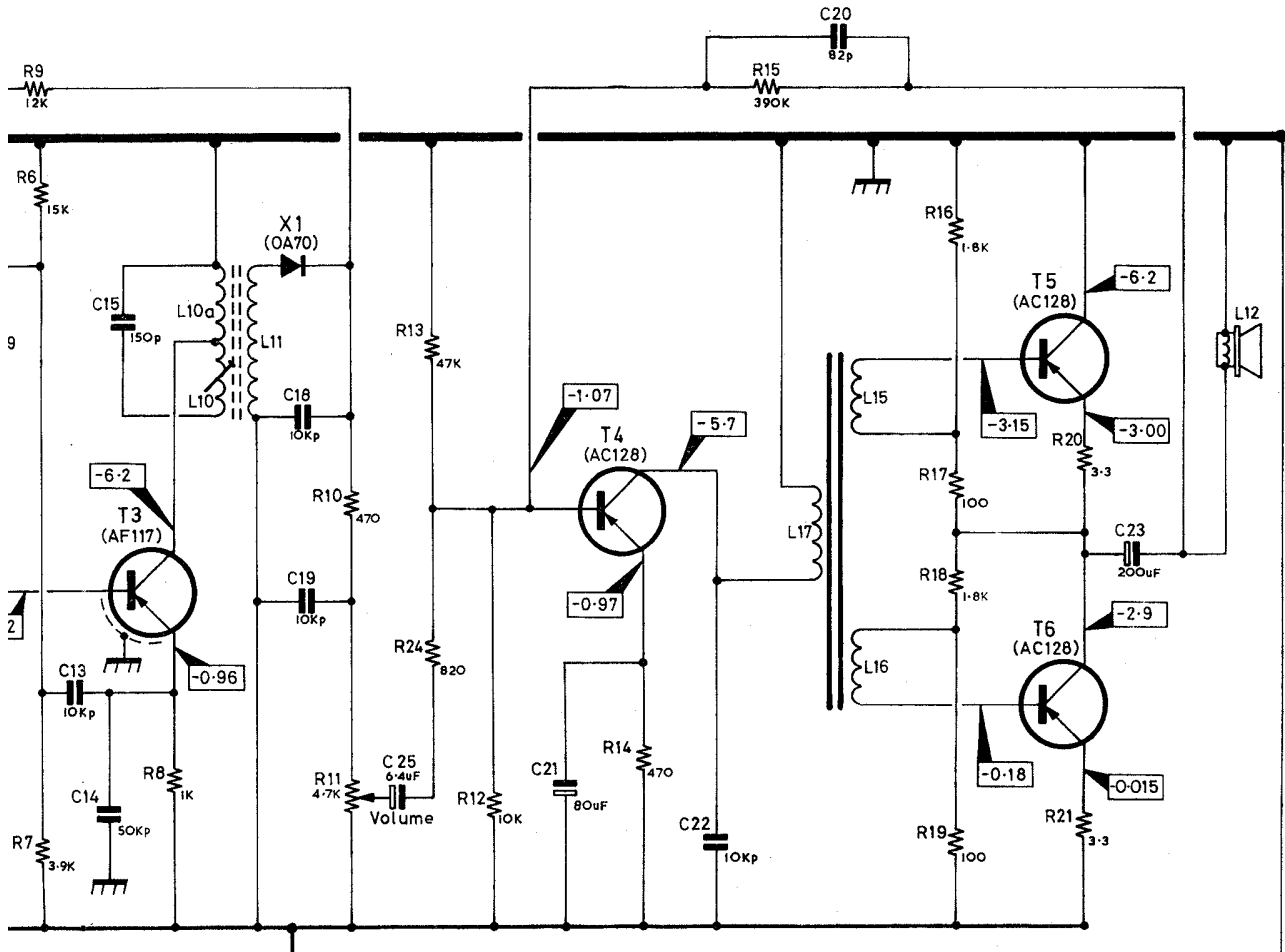
COIL RESISTANCES			
L1	4Ω	L9	<1Ω
L2	<1Ω	L10	9Ω
L3	19Ω	L10a	3.3Ω
L4	4.8Ω	L11	1.8Ω
L4a	<1Ω	L12	8Ω
L5	<1Ω	L14	3Ω
L6	8Ω	L15	60Ω
L6a	2.1Ω	L16	60Ω
L7	<1Ω	L17	250Ω
L8	7.5Ω	L18	1500Ω
L8a	2.4Ω	L19	34Ω



All voltages taken with respect to +ve line (junction R30/C31/X2) using 100KΩ/V meter. Mains input 240 V.A.C. No signal input.

Fig. 3 CIRCUIT DIAG

10a.	11.	17.	15.	12.	L													
10.	11.	15.	16.	19.	18.	C												
13.	14.	18.	19.	7.	25.	29.	21.	31.	22.	30.	20.	23.	R					
9.	6.	7.	8.	10.	11.	13.	24.	12.	14.	30.	15.	16.	17.	18.	19.	20.	21.	MISC
T3.	X1.	X2.	T4.	MR1.	T5.	T6.												



* X2 = OAZ202 or BZY88/C6V2
 * See spare parts list

CIRCUIT DIAGRAM

SD3544

L		D	1	C A 2	B					17	16	15	3	14		12		19		L														
C	18	10	14	13	9	25	7		27	6	28	2	22	26	20	5	3		4	23	29	31	30											
R		5	8	9		4		6	7	13	14		21	1	27	3	2	23		28	16	17	18	19	20				11		29	30		R

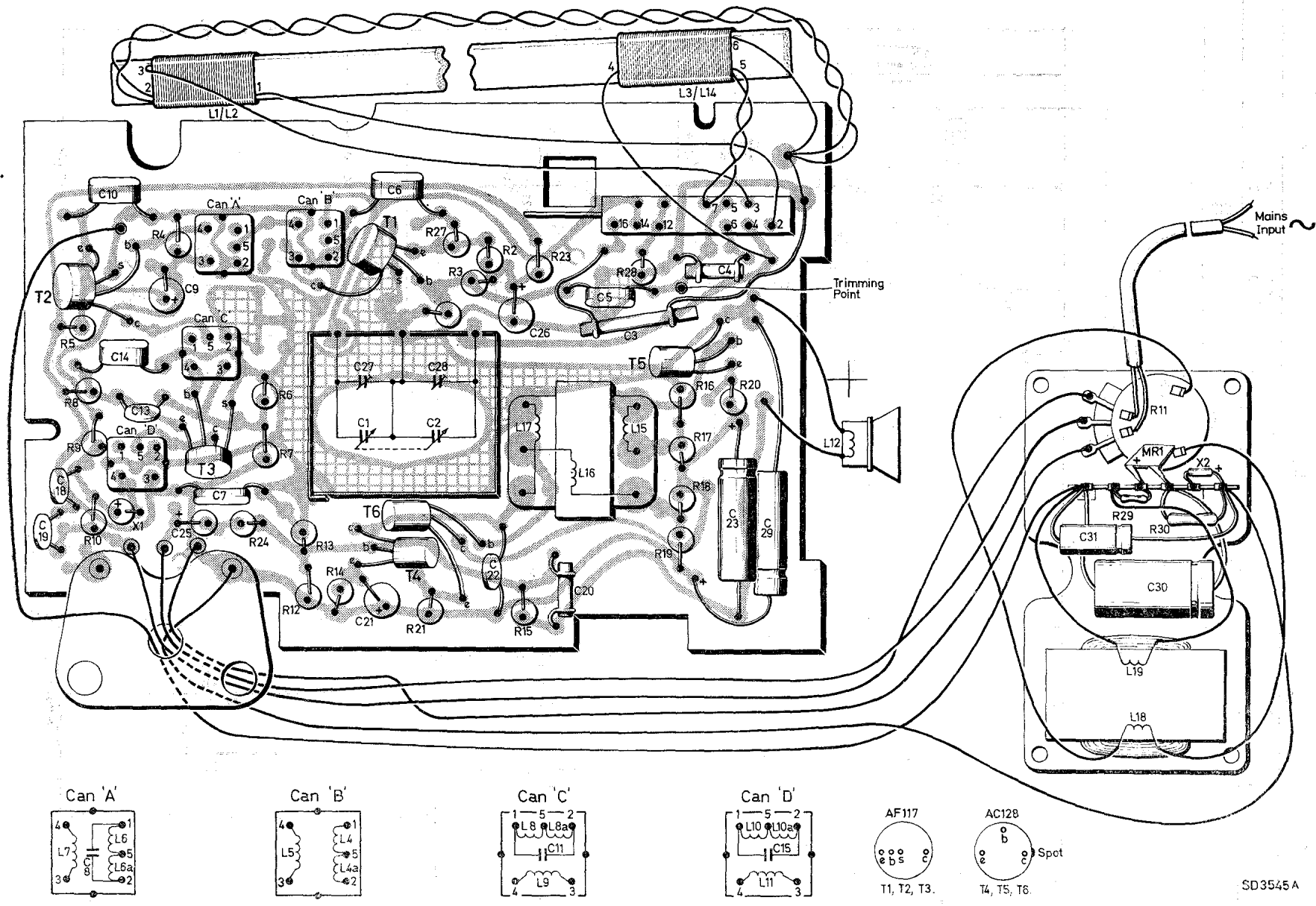


Fig. 4 PRINTED PANEL and WIRING DIAGRAM

SD3545 A

SPARE PARTS LIST

SUPPLY OF SPARE PARTS: To ensure correct interpretation of requirements please include the following information on orders for spare parts.

1. The full type number recorded on the type number plate, including any suffix. **Do not use the commercial abbreviation which may be misleading.**
2. Whenever possible, quote the serial number of the receiver. In some receivers the components have been changed during production.
3. **Always give a brief description** and colour where applicable.
4. Quote part number.

If it is necessary to return components, always include full identification on the accompanying advice note.

CABINET ASSEMBLY

Front moulding	...	...	...	...	...	3113.104.04580
Grille assembly (13RB262)	...	...	...	...	...	3113.103.11210
Grille assembly (ST4500)	...	...	...	...	...	3113.103.12510
Nameplate (13RB262)	...	...	...	...	...	3113.100.00440
Nameplate (ST4500)	...	...	...	...	...	3113.100.00460
Station scale	...	...	...	...	...	3113.108.11200
Bush retaining—scale and grille (10)	...	...	...	...	...	3113.104.04680
Washers for above (10)	...	...	...	...	...	3113.104.04730
Spire fix for above (10)	...	...	...	...	...	3113.101.01080
Rear moulding (13RB262)	...	...	...	...	...	3113.108.14050
Rear moulding (ST4500)	...	...	...	...	...	3113.104.04590
Fixing screws for above (2)	...	...	...	...	...	B054.ED/3 x 30
Nuts for screws (2)	...	...	...	...	...	MK.927.44

MAIN CHASSIS

Pointer	...	...	...	...	...	3113.108.11110
Drive cord (410mm.)	...	...	...	...	...	K299.ZZ/938
Spring for drive cord	...	...	...	...	...	3113.101.01040
Felt ring for pointer	...	...	...	...	...	A3.564.34
Drive drum	...	...	...	...	...	3113.104.04610
Screw for drum	...	...	...	...	...	B054.ED/2.6 x 8
Washer for above	...	...	...	...	...	3113.101.23640
Bracket for aerial assembly (2)	...	...	...	...	...	3113.104.04660
Spire fix for above (2)	...	...	...	...	...	3113.101.00540
Wavechange switch lever	...	...	...	...	...	3113.104.04620
Scale backing plate	...	...	...	...	...	3113.108.11100
Printed panel	...	...	...	...	...	3113.108.12390
Mounting plate for knobs	...	...	...	...	...	3113.108.11080
Paxolin plate with roller	...	...	...	...	...	3113.108.11090
Mounting plate for power unit	...	...	...	...	...	3113.101.23660
Screws for power and chassis plate (5)	...	...	...	...	...	B070.AD/5N x 4
Tag strip	...	...	...	...	...	3113.108.70760
Mains lead 2 yds.	...	...	...	...	...	0713.181.00012
Spring clip for above	...	...	...	...	...	3113.101.11070

CONTROL KNOBS

Tuning	...	...	...	...	...	3113.104.04640
Waveband	...	...	...	...	...	3113.104.04630
Wire spring for above	...	...	...	...	...	3113.101.00160
Washer for above	...	...	...	...	...	3113.101.23640
Screw for above	...	...	...	...	...	B054.ED/2.6 x 4
Volume	...	...	...	...	...	3113.108.11230
Spring for above	...	...	...	...	...	MK.752.00

SEMI-CONDUCTORS

T1	...	...	...	...	...	AF117
T2	...	...	...	...	...	AF117
T3	...	...	...	...	...	AF117
T4	...	...	...	...	...	AC128
T5	...	...	...	...	...	AC128
T6	...	...	...	...	...	AC128
X1	...	...	...	...	...	OA70
X2	(R30 to be 56Ω)	...	...	...	...	OAZ202
or X2	(R30 to be 82Ω)	...	...	...	...	BZY88/C6V2
MR1	...	...	...	...	...	3113.100.50170

COILS AND TRANSFORMERS

L1-3/14	Ferrite rod aerial	...	...	...	...	3113.108.22520
L4/5	Osc. coil	...	...	...	...	A3.192.55
L6/7	1st I.F. transformer	...	...	...	...	MK.571.05
L8/9	2nd I.F. transformer	...	...	...	...	MK.571.06
L10/11	3rd I.F. transformer	...	...	...	...	MK.571.07
L12	Loudspeaker	...	...	...	...	940/AD2351SY
L15/17	Driver transformer	...	...	...	...	MK.516.62
L18/19	Mains transformer	...	...	...	...	3113.108.30280

CAPACITORS

Type	Value pF	Type	Value pF
C1/27 } Gang	...	C18 Ceramic	10K
C2/28 }	...	C19 Ceramic	10K
C3 Ceramic	154	C20 Ceramic	82
C4 Ceramic	62	C21 Elco	80uF
C5 Foil	10K	C22 Ceramic	10K
C6 Foil	20K	C23 Elco	200uF
C7 Foil	50K	C25 Elco	6.4uF
C9 Elco	40uF	C26 Elco	25uF
C10 Foil	50K	C29 Elco	200uF
C13 Ceramic	10K	C30 Elco	500uF
C14 Foil	50K	C31 Elco	125uF
			MK.207.10
			MK.207.10
			C304.GH/A82E
			C426.AR/A80
			MK.207.10
			C426.AR/C200
			C526.AS/C6.4
			C426.AR/C25
			C426.AR/C200
			3g13.100.50180
			C426.AR/E125

RESISTORS

Value Ω	Value Ω
R1 ... 22K	R16 ... 1.8K
R2 ... 1K	R17 ... 100
R3 ... 6.8K	R18 ... 1.8K
R4 ... 82K	R19 ... 100
R5 ... 470	R20 ... 3.3
R6 ... 15K	R21 ... 3.3
R7 ... 3.9K	R23 ... 560
R8 ... 1K	R24 ... 820
R9 ... 12K	R27 ... 56
R10 ... 470	R28 ... 180K
R11 Volume 4.7K	R29 ... 22
R12 ... 10K	or R29 ... 47
R13 ... 47K	R30 ... 56 (When X2 is OAZ202)
R14 ... 470	or R30 ... 82 (When X2 is BZY88)
R15 ... 390K	
	B8.305.04B/1K8
	B8.305.04B/100E
	B8.305.04B/1K8
	B8.305.04B/100E
	B8.305.82A/3E3
	B8.305.82A/3E3
	B8.305.04A/560E
	B8.305.04A/820E
	B8.305.04A/56E
	B8.305.04A/180K
	902/A22E
	902/A47E
	902/56E
	48.426.05/82E