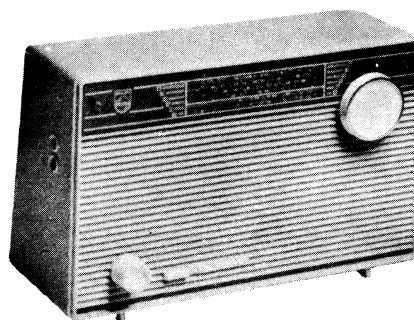


MTI

PHILIPS *Service* notes



MODEL MTI

SPECIFICATIONS

Battery Voltage	9V (6x950 or D50 cells)
Battery consumption	25mA (no signal)
Tuning range	517 - 1622 kc/s
Intermediate frequency	455 kc/s
Cabinet	Plastic mantel

SEMI-CONDUCTOR FUNCTIONS

	No.	Type	Function
Transistor	TS1	OC169	Frequency converter
"	TS2	OC169	I.F. amplifier
"	TS3	OC169	I.F. amplifier
"	TS4	OC71	Audio driver
"	TS5	OC74	Class B power output
"	TS6	OC74	
Diode	GR1	OA79	Limiting diode
"	GR2	OA95	Demodulator and A.V.C. (in 3rd I.F.T. can)

REMOVAL OF PRINTED BOARD FROM CABINET

Remove battery compartment cover and remove batteries. Remove cabinet back—one screw.

Turn dial cursor to extreme low frequency position. Unsolder the copper shielding plate against the I.F. transformers from the cabinet mounted shield plate. Unsolder—three leads from the volume control potentiometer, one lead from the on/off switch and one lead from the speaker. Unclip the rod aerial assembly from its mounting bracket.

Remove the four screws mounting the printed board to the cabinet. Lift out the board and the rod aerial assembly together.

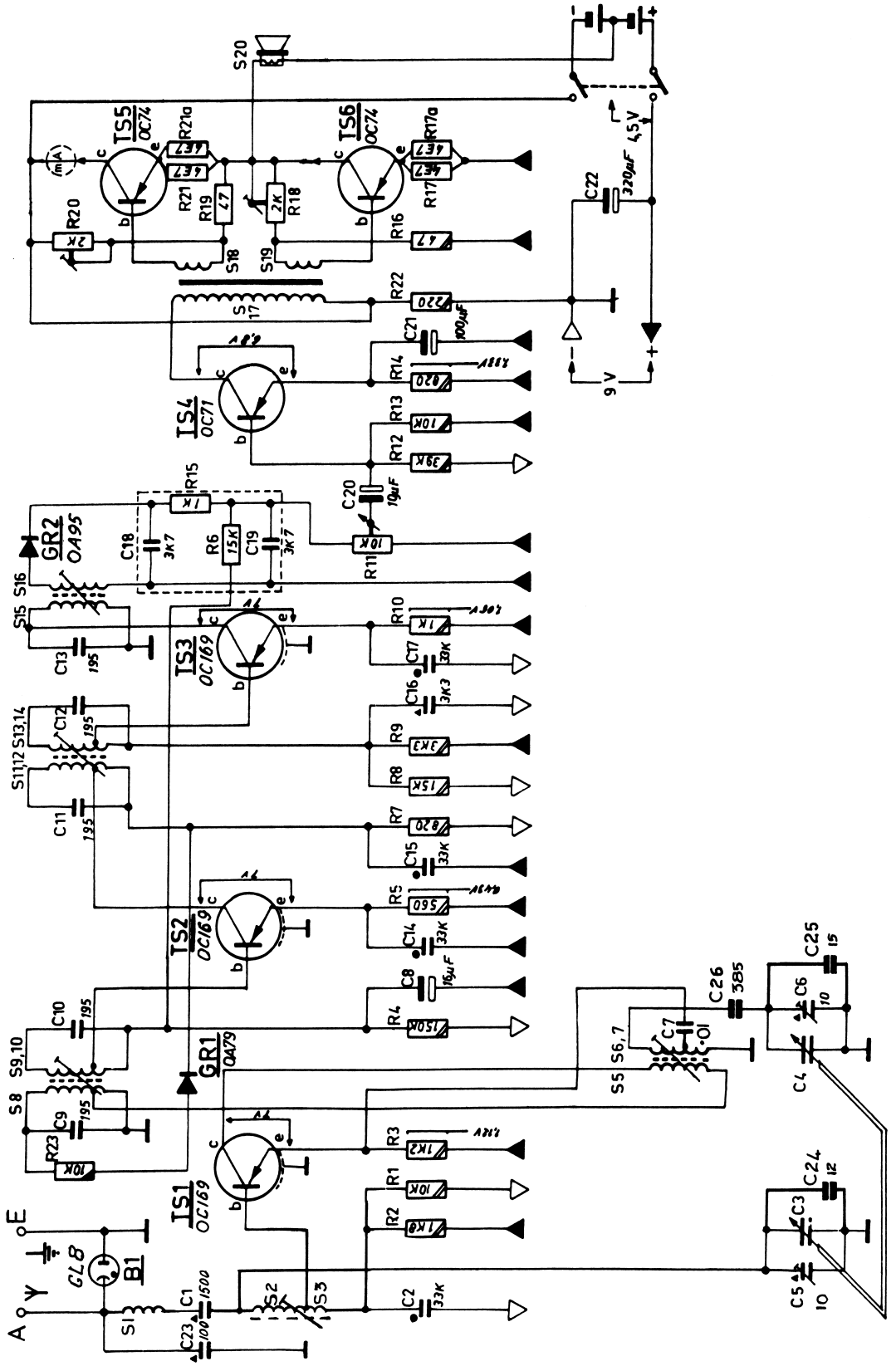
When replacing the board, first put the tuning capacitor into full mesh position and the dial cursor to the extreme low frequency end of the dial scale to ensure correct coupling of the tuning capacitor to the dial drum.

August, 1962.

Published by PHILIPS ELECTRICAL INDUSTRIES PTY. LTD.

Sydney, Melbourne, Adelaide, Brisbane, Perth, Hobart, Newcastle, Canberra,

S	1.	2.	3.	4.	8.	5.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.					
C	23.	1.25.	3.	24.	9.	4.	107.	6.	8.	25.	14.	15.	11.	16.	12.	17.	13.	21.	22.				
R	2.	1.	23.	3.	4.	5.	7.	8.	9.	10.	6.	11.	15.	12.	13.	14.	22.	20.	16.	19.	18.	17.	17a.



CAPACITORS

C.No.	Description	Tol. %	V.W.	Type or Code No.
1	1.5nF ceramic, Hi-K	-20+50		904/PIK5
2	0.033 μ F Polyester	10	125	Philips C296.AA/A33K
3)	Tuning capacitor			49.002.64
4)				
5	10pF ceramic trimmer			908/10E
6	10pF ceramic trimmer			908/10E
7	0.01 μ F ceramic Hi-K	-20+50		904/P10K
8	16 μ F electrolytic		10	Philips C.426.AE/D16
9)	Part of 1st I.F.T.			
10)				
11)	Part of 2nd I.F.T.			
12)				
13	Part of 3rd I.F.T.			
14	0.033 μ F Polyester	10	125	Philips C.296.AA/A33K
15	0.033 μ F Polyester	10	125	Philips C.296.AA/A33K
16	3.3nF ceramic, Hi-K	-20+50		904/3K3
17	0.033 μ F Polyester	10	125	Philips C.296.AA/A33K
18	3.7nF ceramic)Combination unit			E.556.ZZ/01
19	3.7nF ceramic)with R6 and R15			
20	10 μ F electrolytic		16	Philips C.426.AE/E10
21	100 μ F electrolytic		4	Philips C.426.AE/B100
22	320 μ F electrolytic		10	Philips C.426.AE/D320
23	100pF ceramic, N750	10		Philips C.304.GH/A100E
24	12pF ceramic, N750	10		Philips C.304.GH/A12E
25	15pF ceramic, N750	10		Philips C.304.GH/A15E
26	385 pF Styroflex	1	125	Philips C.285.AB/D385E

NOTE: nF = nanofarad, i.e. 10⁻⁹ farad.

RESISTORS

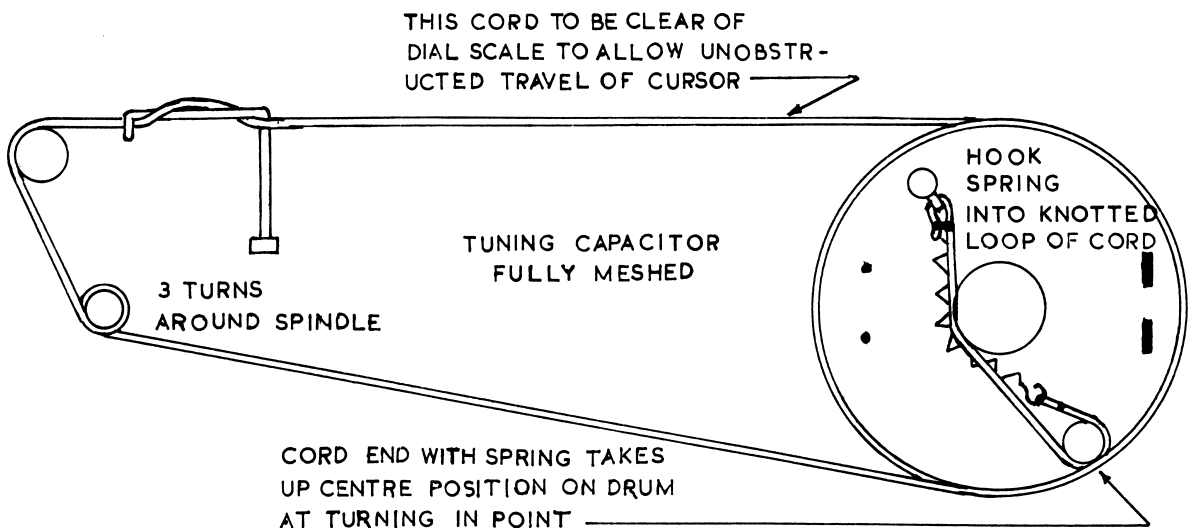
R. No.	Description	Tol. %	W	Type or Code No.
1	10,000 Ω cracked carbon	10	$\frac{1}{4}$	Philips B8.305.05A/10K
2	1,800 Ω cracked carbon	10	$\frac{1}{4}$	Philips B8.305.05A/1K8
3	1,200 Ω cracked carbon	10	$\frac{1}{4}$	Philips B8.305.05A/1K2
4	150k Ω cracked carbon	10	$\frac{1}{4}$	Philips B8.305.05A/150K
5	560 Ω cracked carbon	10	$\frac{1}{4}$	Philips B8.305.05A/560E
6	15,000 Ω part of combi unit			E.556.ZZ/01
7	820 Ω cracked carbon	10	$\frac{1}{4}$	Philips B8.305.05A/820E
8	15,000 Ω cracked carbon	10	$\frac{1}{4}$	Philips B8.305.05A/15K
9	3,300 Ω cracked carbon	10	$\frac{1}{4}$	Philips B8.305.05A/3K3
10	1,000 Ω cracked carbon	10	$\frac{1}{4}$	Philips B8.305.05A/1K
11	10,000 Ω carbon potentiometer log. taper (volume)			Philips E.098.AG/00B29
12	39,000 Ω cracked carbon	10	$\frac{1}{4}$	Philips B8.305.05A/39K
13	10,000 Ω cracked carbon	10	$\frac{1}{4}$	Philips B8.305.05A/10K
14	820 Ω cracked carbon	10	$\frac{1}{4}$	Philips B8.305.05A/820E
15	1,000 Ω part of combi unit			E.556.ZZ/01
16	47 Ω cracked carbon	10	$\frac{1}{4}$	Philips B8.305.05A/47E
17-17a	4.7 Ω carbon	10	$\frac{1}{2}$	Philips B8.031.42A/4E7
18	2,000 Ω pre-set potentiometer			E.097.AC/2K
19	47 Ω cracked carbon	10	$\frac{1}{4}$	Philips B8.305.05A/47E
20	2,000 Ω pre-set potentiometer			E.097.AC/2K
21-21a	4.7 Ω carbon	10	$\frac{1}{2}$	Philips B8.031.42A/4E7
22	220 Ω cracked carbon	10	$\frac{1}{4}$	Philips B8.305.05A/220E
23	10,000 Ω cracked carbon	10	$\frac{1}{4}$	Philips B8.305.05A/10K

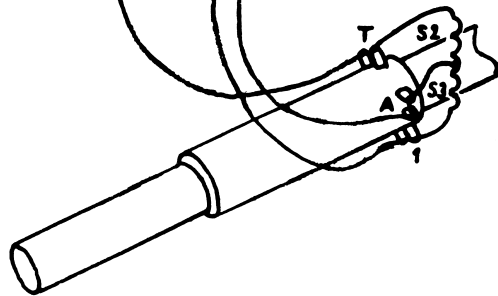
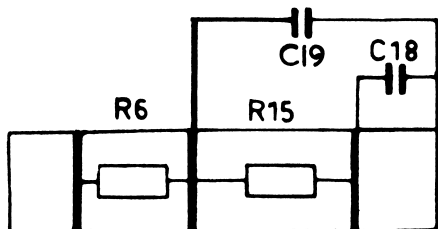
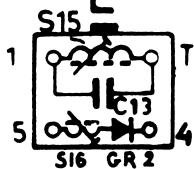
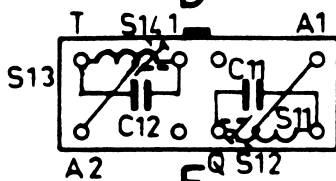
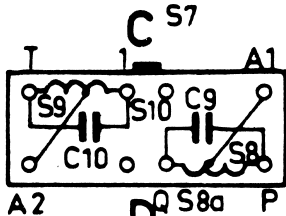
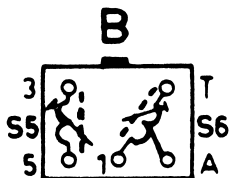
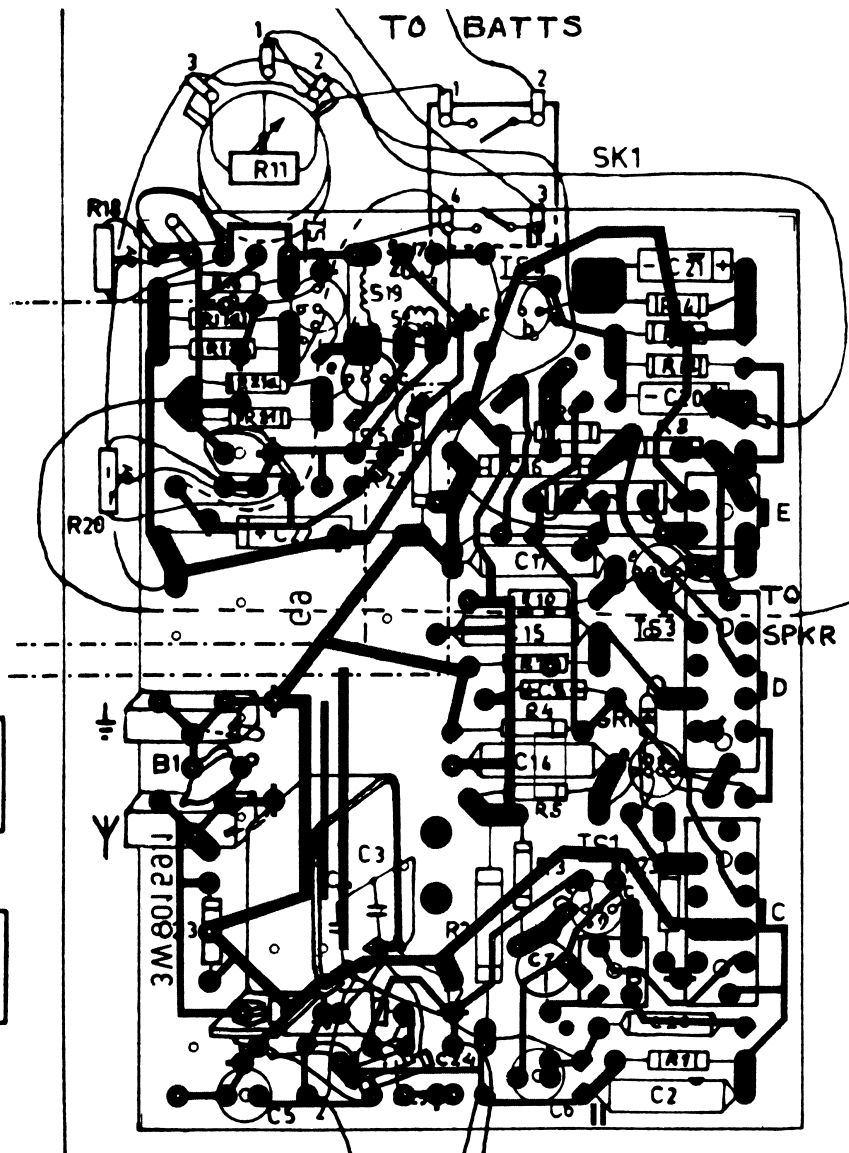
INDUCTORS

S. No.	Description	Code No.	S. No.	Description	Code No.
1	Aerial coupling coil	A3.986.92	11)		
2)	Rod aerial assembly	A3.184.08	12)	2nd I.F.T.	A3.168.06, or A3.205.33
3)			13)		
5)			14)		
6)	Oscillator coil	A3.184.10	15)	3rd I.F.T. (includes diode GR2)	A3.216.22
7)			16)		
8)			17)		
9)	1st I.F.T.	A3.168.07	18)	Driver transformer	A3.168.19
10)			19)		
			20)	Loudspeaker, 25 Ω V.C.	AD2400HZ

MECHANICAL PARTS LIST

Description	Code No.
Aerial and Earth plug	978/1x4AF
	Black 978/1x4AA
Battery holder plate assembly, positive end	A3.146.59
Compression spring for battery holder, negative end, 2x	A3.146.56
Cabinet	A3.156.80
Cabinet bottom plate (battery hatch)	A3.157.70
Cabinet back plate assembly	A3.146.75
Dial cursor	A3.146.72
Dial drive drum	P4.095.22/799
Dial drive pulley	P4.120.09/111
Dial cord tension spring	A3.645.67
Dial cord—34 $\frac{3}{4}$ " with $\frac{1}{4}$ " loops	
Dial scale	A3.971.35
Knob—on/off switch	P5.412.06/423FY
Knob—volume	P5.260.85/423PA1
Knob—tuning	P5.260.84/423PA1
Grub screw for knob	A3.324.16
Leaf spring—tuning capacitor to dial drum	A3.146.66
Slide—on/off switch	P5.412.06/423FY
Screw for dial scale mounting, 2x	A3.267.98
Socket, aerial and earth, 2x	A3.821.27
Spring—dial drum retaining to cabinet	A3.147.03
Spring—compression (neg. end battery holder), 2x	A3.146.56
Spring—tuning knob retaining	A8.818.38
Switch plate (fixed) for on/off switch	A3.146.70
Switch plate (moving) for on/off switch	A3.146.69





ADJUSTMENT OF OUTPUT BIAS.

Put volume control to minimum position. Insert mA meter in collector circuit of TS5 and voltmeter between collector and emitter of TS6. Adjust R18 and R20 together for a reading of 4.5 volts across TS6 and a collector current in TS5 according to the temperature table below.

At an ambient temperature of	59°F	adjust to	4mA
" " " "	68°F	" "	5mA
" " " "	77°F	" "	6mA
" " " "	86°F	" "	8mA
" " " "	95°F	" "	10mA
" " " "	104°F	" "	12mA

ALIGNMENT

I.F.

Fully close tuning capacitor, put volume control at maximum, keep signal generator output such that receiver output does not rise above about 50mW.

Screw out cores of all I.F. adjustments except primary 3rd I.F.T. and primary 1st I.F.T.:

Apply signal generator at 455 kc/s to base of TS2 through 0.033 μ F capacitor. Trim primary 3rd I.F.T., primary 2nd I.F.T. and secondary 2nd I.F.T. in order for peak output.

Screw in slug of secondary of 2nd I.F.T. until output reduced by 25%.

Retune primary of 2nd I.F.T. for peak output.

Retune secondary of 2nd I.F.T. for peak output (no fresh peak will be found if original detuning was to correct degree).

Apply signal generator at 455 kc/s to base of

TS1 through 0.033 μ F capacitor.

Trim primary of 1st I.F.T. and then secondary 1st I.F.T. for peak output.

R.F.

The various trimming point locations and the dial scale trimming marks, are shown on the drawing below.

Apply signal generator to aerial and earth sockets through standard R.M.A. dummy. Open tuning capacitor to minimum capacity and check that cursor is set at trimming mark A.

With receiver tuning adjusted to trimming mark C, apply a frequency of 550 kc/s and adjust S6-7 & S2 for peak output.

Return receiver tuning to trimming mark A and with a frequency of 1635 kc/s from the signal generator, adjust C6 & C5 for peak output.

