

SERVICE INFORMATION FOR THE

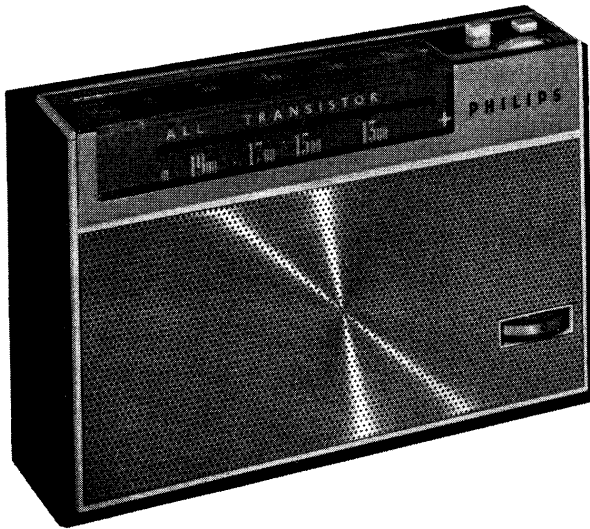
PHILIPS *and* Stella

LIG30T ST425A

RADIO RECEIVERS

INTRODUCTION

Both these portable receivers employing micro-miniature techniques provide excellent reception on medium and long wavebands. The extremely economical circuit using 6 transistors and 1 diode is



powered by 4 penlight batteries. The receivers are supplied complete with leather carrying case, batteries and wired in earpiece. The LIG30T is available with a black and white case (/15R model) or an ivory and white case (/15D model). The ST425A has a red and white case. They are electrically identical.

SPECIFICATION

Semiconductors and their functions

T1	AF117	Frequency changer
T2	AF117	1st I.F. amplifier
T3	AF117	2nd I.F. amplifier
X1	OA70	Detector and A.G.C. diode
T4	OC81D	A.F. Driver
T5 } T6 }	OC81	Push-pull Output

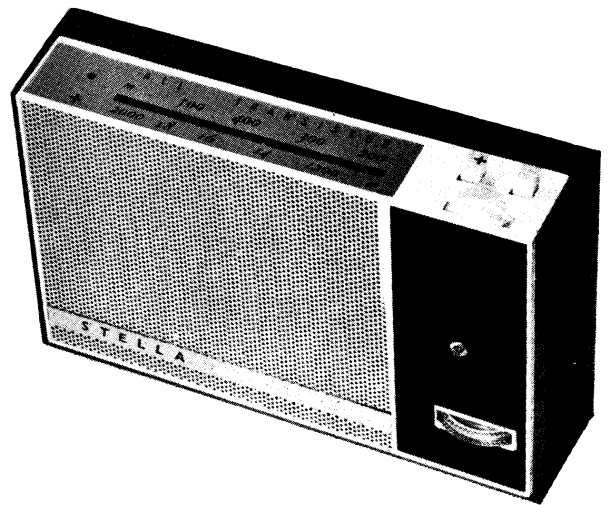
Loudspeaker	2½" circular, flat cone, 25Ω impedance.
Output	120mW
Waveband Ranges	M.W. 185-571 metres L.W. 1175-2000 metres

Supply Voltage	6 volts D.C.
Consumption	9-15mA (no signal)
Batteries	4-1.5v cells of any of the following types, or equivalents. Ever Ready D14, U7. Exide T4. Vidor V12R
Dimensions	Width 5⅝". Height 3¼". Depth 1⅝".
Weight	15 ozs. including batteries.

DISMANTLING

The sliding base gives access to the battery compartment and ear-piece. The batteries or earpiece can be withdrawn without entirely removing the base.

To uncase completely, remove the base, batteries and earpiece. Remove the screw in the centre of the battery compartment and gently lever the two halves of the case apart with the fingers.



The component side of the printed panel is then readily accessible. To remove the printed panel, extract the two fixing screws, (see fig. 1) lift the lower edge of the panel and gently draw it towards the bottom of the case.

To replace the loudspeaker remove the printed panel as above, swivel the three loudspeaker retaining clips clear of the speaker rim and unsolder the leads.

ISSUED BY :—

AMALGAMATED ELECTRIC SERVICES LTD.

WADDON FACTORY ESTATE

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7722

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Form AES 351

TRIMMING INSTRUCTIONS

General

Disconnect the loudspeaker/earpiece leads at the output tags on the printed panel, and connect an output meter set to 25Ω impedance across the tags. During trimming the output should not exceed 50mW.

Alternatively an A.C. voltmeter (1.5v. or 2.5v. range) with a 25Ω resistor in parallel may be used; trimming level 1.1V. Set the volume control to maximum.

Throughout the trimming procedure the signal generator should be modulated with an audio signal to a depth of approx. 30%.

I.F. Trimming

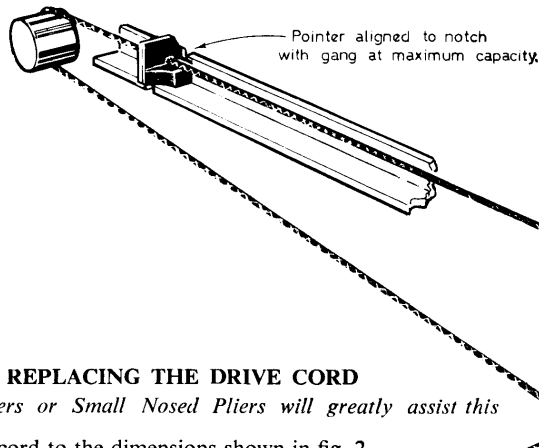
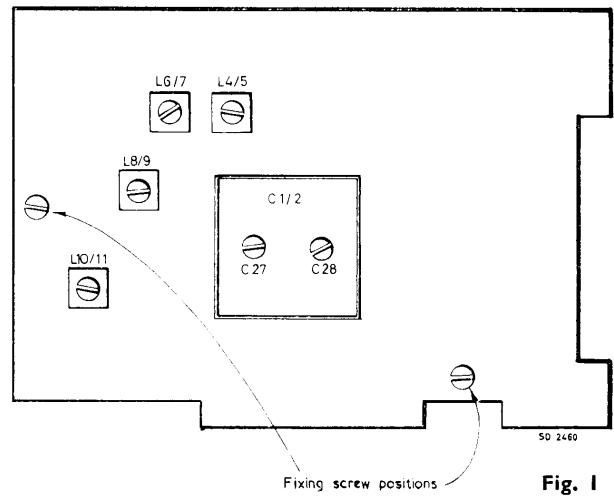
1. Turn the gang to minimum capacity (tuning knob fully clockwise) and switch to M.W.
2. Apply a signal of 470Kc/s to the trimming point provided (see fig. 4) via a 470KpF capacitor.
3. Trim L10, L8 and L6 in that order for maximum output. Repeat as necessary.

Oscillator Trimming

1. Connect the signal 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 anti-clockwise).
3. Apply a signal of 148Kc/s 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 1635 Kc/s and trim C27 for maximum output.

Aerial Trimming

1. The generator output must be loosely coupled to the aerial circuit. This can be done by looping a single wire approximately 12" long around the receiver, and connecting the generator output to the ends of the loop.
 2. Switch to L.W., apply a signal of 190Kc/s and tune the receiver to this frequency.
 3. Adjust position of L3/L14 for maximum output.
 4. Switch to M.W., apply a signal of 525Kc/s and tune the receiver to this frequency.
 5. Adjust position of L1/L2 for maximum output.
 6. Apply a signal of 1300Kc/s and tune the receiver to this frequency.
 7. Trim C28 for maximum output.
- Repeat as necessary.



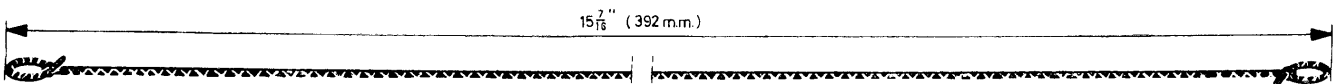
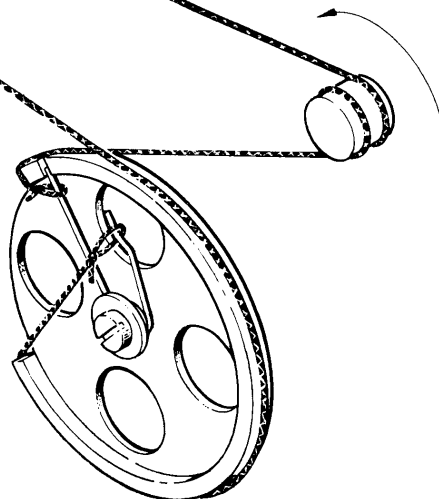
REPLACING THE DRIVE CORD

Note.—Tweezers or Small Nosed Pliers will greatly assist this operation.

Make up the cord to the dimensions shown in fig. 2. Turn the tuning drum to its fully clockwise position and pass one of the looped ends of the cord over the straight leg of the tension spring. Lead the cord clockwise around the outside of the drum, to the tuning spindle and wind on 1½ turns anti-clockwise winding from back to front. Feed the cord over the left hand pulley then clockwise around the drum and through the cut-out section of the drum rim. Compress the tension spring and anchor the cord loop on to the cranked leg of the tension spring.

POINTER SETTING

Turn the tuning drum to its fully clockwise position (fully anti-clockwise position of the tuning knob) and align the pointer with the notch at the left hand end of the pointer carriage, see fig. 2.



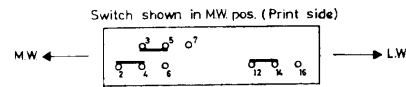
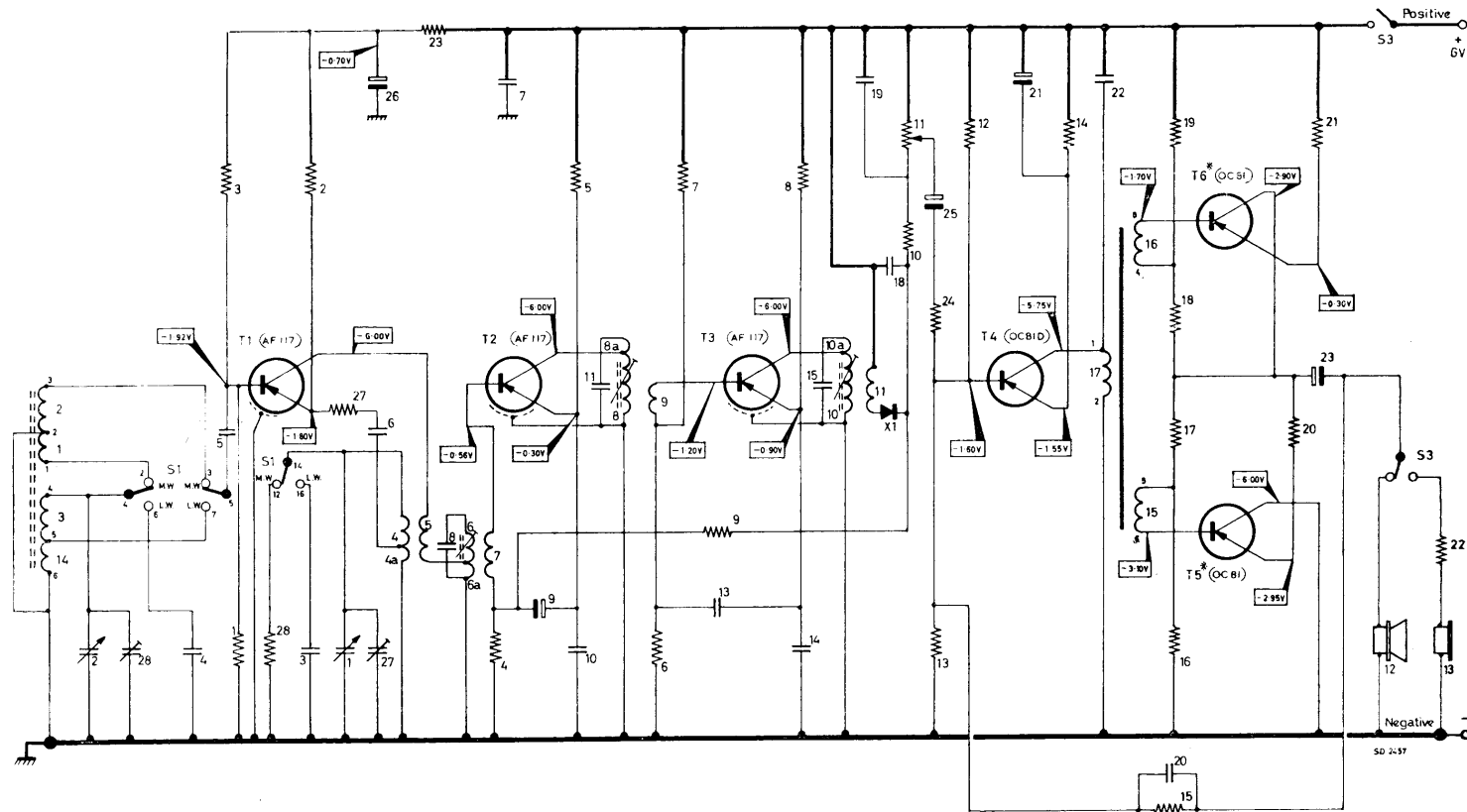
L	3, 14, 1, 2,	4, 4a, 5,	6, 6a, 7,	8, 8a, 9,	10, 10a, 11,	17,	16, 15,	12,	13,						
C	2,	28, 5, 4,	3, 3,	2, 2,	27, 27,	23,	26, 6, 7,	8, 9,	11, 10, 13,	15, 14, 19, 18, 25,	21, 22,	20, 19, 18, 17, 16, 15,	23,	21,	22,
R		1, 28,		4, 4,	6, 6,								20, 21,		22,

CAPACITORS

- C3 ... 154pF
- C4 ... 56pF
- C5 ... 10,000pF
- C6 ... 22,000pF
- C7 ... 47,000pF
- C8 ... in L6/7
- C9 ... 32uF
- C10 ... 47,000pF
- C11 ... in L8/9
- C13 ... 10,000pF
- C14 ... 47,000pF
- C15 ... in L10/11
- C18 ... 10,000pF
- C19 ... 10,000pF
- C20 ... 82pF
- C21 ... 32uF
- C22 ... 10,000pF
- C23 ... 200uF
- C25 ... 3.2uF
- C26 ... 20uF

RESISTORS

- R1 ... 22,000Ω
- R2 ... 1,000Ω
- R3 ... 6,800Ω
- R4 ... 82,000Ω
- R5 ... 470Ω
- R6 ... 15,000Ω
- R7 ... 3,900Ω
- R8 ... 1,000Ω
- R9 ... 12,000Ω
- R10 ... 470Ω
- R11 ... 5,000Ω
- R12 ... 22,000Ω
- R13 ... 47,000Ω
- R14 ... 1,500Ω
- R15 ... 0.39MΩ
- R16 ... 1,500Ω
- R17 ... 100Ω
- R18 ... 1,500Ω
- R19 ... 100Ω
- R20 ... 4.7Ω
- R21 ... 4.7Ω
- R22 ... 22Ω
- R23 ... 560Ω
- R24 ... 820Ω
- R27 ... 56Ω
- R28 ... 0.18MΩ



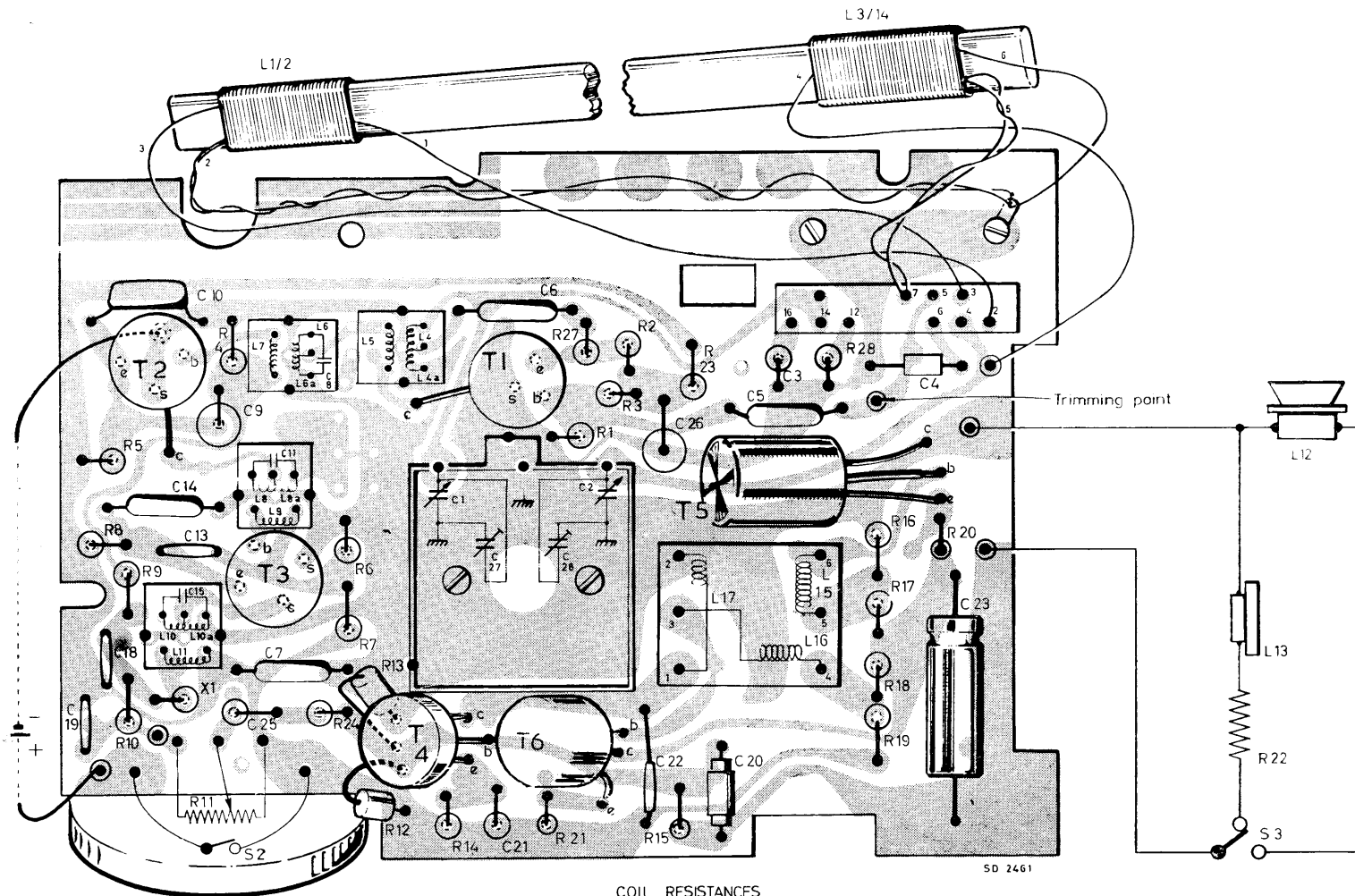
Voltages taken, with respect to battery positive, using a 100KΩ/V meter. Negative earth.

* T5 & 6 must be matched.

ADDENDUM: THE OSC. COIL L4/4a IS CORE TUNED

Fig. 3

L	10.	10a.	7. 1/2. 6a. 6.	5.	4. 4a.		17.	15, 16.	3/14.		13. 12.
C		11.	14. 13. 10.	9. 11	8.	1.	27.	6. 28. 2.	5. 3.	4.	23.
R	19.	18.	15.	25. 7.			21.	26.	22.	20.	
	5.	8. 9.	4.		6. 7.	13.	14.	27.	3. 2.	23.	28. 16.
	10.	10.	11.		24.	12.		21.	1.	15.	17. 18. 20.
											22.



← Turn here for reverse side of panel.

COIL RESISTANCES		
L1 - 3.6Ω	L 6a - 2.1Ω	L11 - 1.7Ω
L2 - <1.0Ω	L 7 - <1.0Ω	L12 - 25.0Ω
L3 - 18.0Ω	L 8 - 7.8Ω	L13 - 6.0Ω
L4 - 4.8Ω	L 8a - 2.3Ω	L14 - 2.7Ω
L4a - <1.0Ω	L 9 - <1.0Ω	L15 - 85.0Ω
L5 - <1.0Ω	L10 - 9.1Ω	L16 - 85.0Ω
L6 - 8.2Ω	L10a - 3.3Ω	L17 - 280.0Ω

Fig. 4 Panel, viewed from Component side

SPARE PARTS LIST

CASE ASSEMBLY			PRINTED PANEL	
Moulded case front	} BLACK LIG30T/25R	MK.839.08	Panel complete	MK.841.10
Moulded case rear		MK.839.95	Screws for above (2)	B.054.ED/2x4
Sliding base plate		MK.996.75	Bottom screw for panel	B.054.ED/3x5
Moulded case front	} IVORY LIG30T/15D	MK.839.97	Washers for above } ST425A only	B.050.CD/3
Moulded case rear		MK.996.63		
Sliding base plate		MK.839.77		
Moulded case front	} BLACK ST425A	MK.842.45		
Moulded case rear		MK.996.77		
Sliding base plate		MK.944.56		
Window for scale	} LIG30T	MK.683.93		
Front escutcheon		MK.913.04		
Front grille		MK.913.07		
Window for scale	} ST425A	MK.944.59		
Escutcheon for V/C with diamond		MK.841.20		
Front grille		MK.913.07		
Stella trade name		MK.708.48		
Type label		A3.596.50		
Battery type label		MK.708.46		
Battery position label		PG.020.58		
Foam strip		MK.684.03		
Insert nut		MK.927.49		
Screw } for above		B.054.ED/3x5		
Washer }		B.050.CD/3		
CARRYING CASE				
Case complete (LIG30T)		MK.842.42		
Case complete (ST425A)		ST.613		
CONTROL KNOBS				
Tuning knob assembly		MK.858.20		
Circlip for above		B.108.AF/1.9		
Wavechange buttons (2)		MK.902.38		
Volume control knob		See R11		
STATION SCALE				
Scale (LIG30T)		MK.708.27		
Scale (ST425A)		MK.708.35		
POINTER DRIVE ASSEMBLY				
Pointer		MK.998.72		
Plastic pointer carriage		MK.083.72		
Drive drum		MK.906.44		
Fibre washer } for above		MK.450.61		
Screw }		B.054.ED/2.6x4		
Drive cord		K299.22/938		
Tension spring for above		MK.730.72		
Bracket and pulley assembly		MK.838.13		
Screws for above (2)		B.054.ED/2x3		
Pulley only		MK.965.69		
Pin for above		MK.617.22		
SWITCHES				
Wavechange switch assembly complete		MK.996.44		
Stator only		MK.839.60		
Slider only		MK.996.42		
Operating bar		MK.922.77		
Operating lever		MK.935.14		
Loudspeaker/earpiece switch		MK.996.43		
Screw for above		B.054.ED/2x4		
On/off switch		See R11	Volume control	
MISCELLANEOUS				
Supports for rod aerial (2)		MK.962.98		
Screws for above (2)		B.054.ED/2x8		
Battery connector complete		MK.839.14		
Contact and spring assembly	} for above	MK.890.54		
Contact		MK.890.53		
Mounting plate		MK.282.34		
Battery link complete		MK.839.13		
Contact and spring assembly	} for above	MK.890.52		
Mounting plate		MK.282.34		
Screen		MK.040.15		
Screws (2) } for tuning gang		B.054.ED/2.6x3		
Washer (2) }		B.050.CD/2.6		
Solder bush		A3.178.09		
Solder tag		B.201.AF/2.6		
Sleeving		K.558.LB/Size		
"Remove" label		MK.282.46		
"Warning" label		PG.021.47		
			SEMICONDUCTORS	
			T1	AF.117
			T2	AF.117
			T3	AF.117
			T4	OC.81
			T5	OC.81
			T6 } Matched pair	OC.81
			X1 Germanium diode	OA.70
			TRANSFORMERS AND COILS	
			L1-3 and L14 Rod aerial	MK.820.83
			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 25Ω	A.D.3207.HZ
			L13 Earphone and lead assembly	MK.833.85
			L15-17 Driver transformer	MK.516.44
			CAPACITORS	
			Type Va ue	
			C1 & 27 } Gang	49.002.48
			C2 & 28 }	
			C3	154pF
			C4	56pF
			C5	10,000pF
			C6	22,000pF
			C7	47,000pF
			C8	In L6/7
			C9	32uF
			C10	47,000pF
			C11	In L8/9
			C13	10,000pF
			C14	47,000pF
			C15	In L10/11
			*C18	10,000pF
			*C19	10,000pF
			C20	82pF
			C21	32uF
			*C22	10,000pF
			C23	200uF
			C25	3.2uF
			C26	20uF
			C27 & 1 }	} See C1/2
			C28 & 2 }	
			*Some sets alternative	C3.31AA/R10K
			RESISTORS	
			Type Va ue Ω	
			R1	22,000Ω
			R2	1,000Ω
			R3	6,800Ω
			R4	82,000Ω
			R5	470Ω
			R6	15,000Ω
			R7	3,900Ω
			R8	1,000Ω
			R9	12,000Ω
			R10	470Ω
			R11 Volume control	5,000Ω
			R12	22,000Ω
			R13	47,000Ω
			R14	1,500Ω
			R15	0.39MΩ
			R16	1,500Ω
			R17	100Ω
			R18	1,500Ω
			R19	100Ω
			R20	4.7Ω
			R21	4.7Ω
			R22	22Ω
			R23	560Ω
			R24	820Ω
			R27	56Ω
			R28	0.18MΩ