

# SERVICE INFORMATION FOR THE

## PHILIPS 'POPMASTER'

### RADIO RECEIVER TYPE L1G41T



The L1G41T is a M.W./L.W. portable radio receiver employing microtechnique. Exceptional sensitivity is obtained by the use of a large, built-in, ferroceptor aerial and high gain tuned circuits. A sensitive  $2\frac{1}{2}$ " circular loudspeaker is incorporated to develop the 120 mW output and provide fine tonal quality.

The overall circuit design, utilizing 6 transistors and 1 diode powered by  $4 \times 1.5$  volt pen-light batteries, is extremely economical in operation. A sliding panel in the cabinet base gives access to the battery compartment and to a separate compartment housing a built-in earpiece and a loudspeaker/earpiece selector switch.

The receiver is available (complete with batteries) in a choice of two colour combinations; grey with steel blue tuning scale or brown with bronze tuning scale. Carrying case NP1627 with carrying strap is available as an accessory.

#### 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**  $2\frac{1}{2}$ " circular, flat cone,  $25\Omega$  impedance.

**Output** 120mW

**Waveband Ranges** M.W. 185-571 metres  
L.W. 1175-2000 metres

**Supply Voltage** 6V 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  $5\frac{3}{8}$ ". Height  $3\frac{3}{4}$ ". Depth  $1\frac{3}{8}$ ".

**Weight** 15 ozs. including batteries.

#### DISMANTLING

The sliding base gives access to the battery compartment and earpiece. The batteries and/or earpiece may each be withdrawn without entirely removing the base.

To uncase completely, remove the base, batteries and earpiece. Release 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 now readily accessible.

To remove the printed panel, extract the two fixing screws (see Fig. 1), then lift the lower edge of the panel and carefully draw it towards 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.

OFFICIAL SERVICE AGENT :—

**AMALGAMATED ELECTRIC SERVICES LTD.**

WADDON FACTORY ESTATE

CROYDON

SURREY

Telephone : CROydon 7722

TELEX No.: 262308

AUGUST, 1965

AES 448

## TRIMMING INSTRUCTIONS

### General

Disconnect the loudspeaker/earpiece leads at the output tags on the printed panel, and connect an output meter set to  $25\Omega$  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  $25\Omega$  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

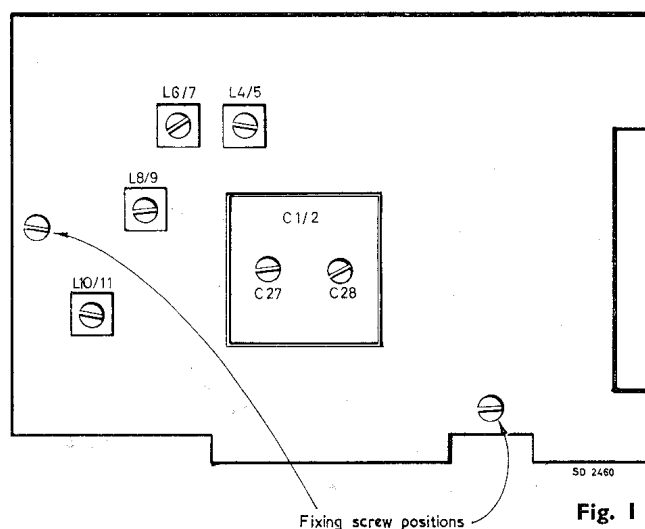
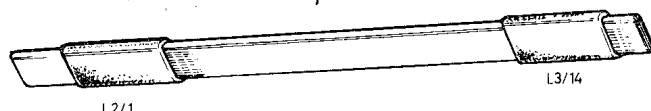
1. Turn the gang to minimum capacity (tuning knob fully clockwise) and switch to M.W.
2. Apply a signal of 470Kc/s to the trimming point provided (see Fig. 4) via a 470KpF capacitor.
3. Trim L10, L8 and L6 in that order for maximum output. Repeat as necessary.

### 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 to 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

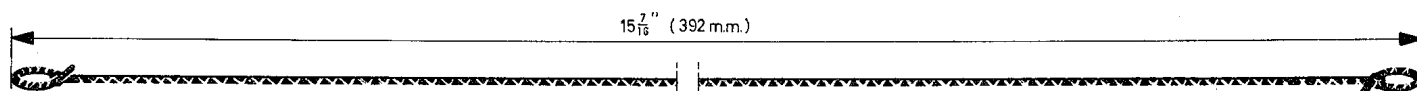
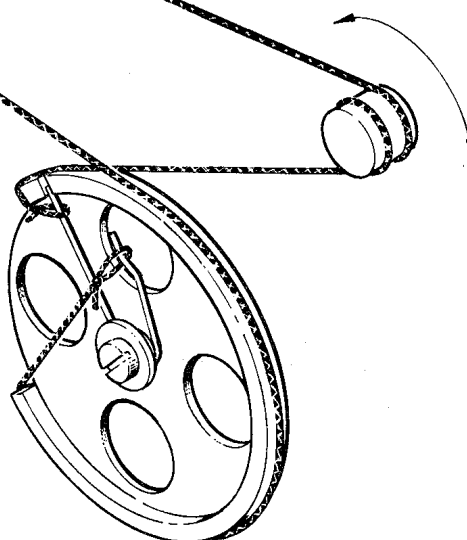
**Note.**—Tweezers or Small Nosed Pliers will greatly assist this operation.

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  $1\frac{1}{2}$  turns anti-clockwise winding from front to back. Feed the cord over the left hand pulley, 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 hooked 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.



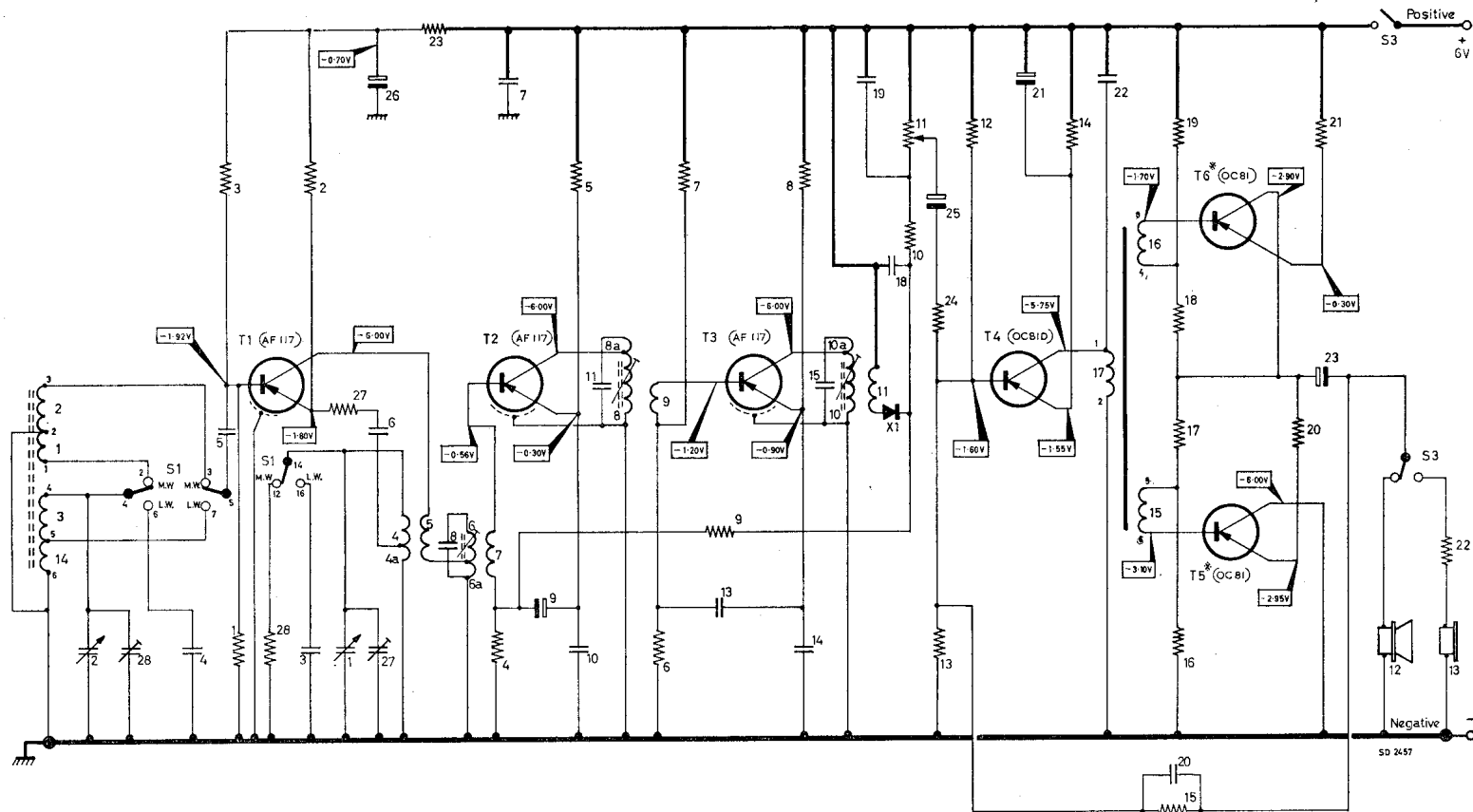
L	3, 14, 1, 2,	4, 4a, 5, 6, 6a, 7,	8, 8a, 9,	10, 10a, 11,	17,	16, 15,	12,	13,
C	2, 28, 4, 3, 2, 27, 26, 6, 27, 8, 7, 11, 10, 13, 15, 14, 19, 18, 25, 21, 22, 20, 23,							
R	1, 28, 4, 6, 9, 8, 10, 11, 12, 14, 19, 18, 20, 21, 22,							

# CAPACITORS

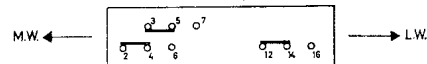
C3	...	154pF
C4	...	56pF
C5	...	10,000pF
C6	...	22,000pF
C7	...	47,000pF
C8	...	in L6/7
C9	...	32pF
C10	...	47,000pF
C11	...	in L8/9
C13	...	10,000pF
C14	...	47,000pF
C15	...	in L10/11
C18	...	10,000pF
C19	...	10,000pF
C20	...	82pF
C21	...	80uF
C22	...	10,000pF
C23	...	200uF
C25	...	3.2uF
C26	...	20uF

# 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	...	3.3Ω
R21	...	3.3Ω
R22	...	22Ω
R23	...	560Ω
R24	...	820Ω
R27	...	56Ω
R28	...	0.18MΩ



Switch shown in MW pos. (Print side)

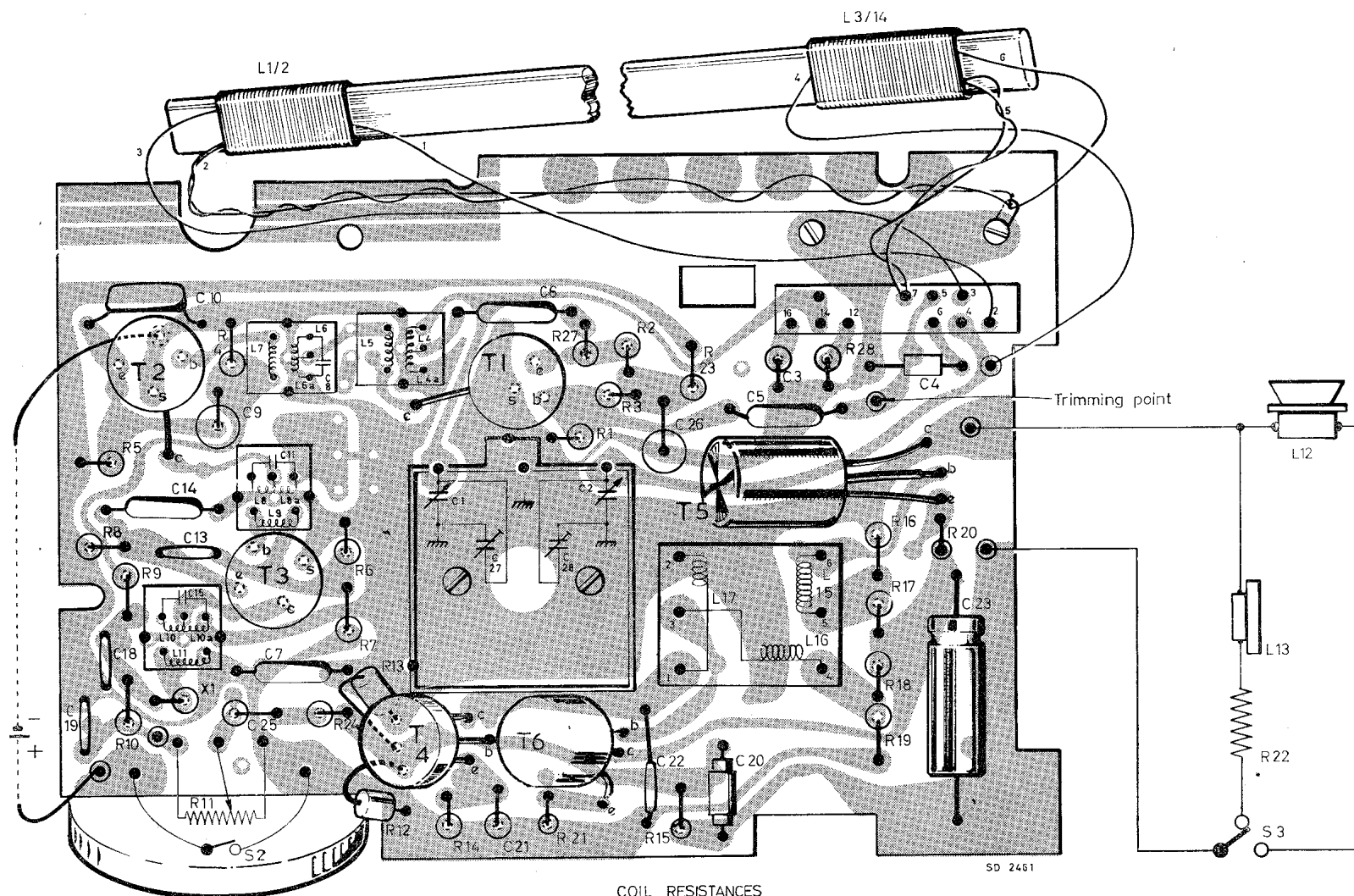


Voltages taken, with respect to battery positive, using a 100KΩ/V meter  
Negative earth.

\*T5 & 6 must be matched.

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.	15.	9.	11	8.	1.	6.	5.	3.	4.	23.								
R	19.	18.	5.	9.	4.	11.	6. 7.	13.	12.	14.	21.	3.	2.	23.	28.	16.	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

Moulded case front	BROWN	...	...	...	3113.108.01400
Moulded case rear		...	...	...	3113.108.01420
Battery cover		...	...	...	3113.108.01440
Moulded case front	GREY	...	...	...	3113.108.01410
Moulded case rear		...	...	...	3113.108.01430
Battery cover		...	...	...	3113.108.01450
Window for scale	...	...	...	...	MK.944.56
Top escutcheon	...	...	...	...	3113.101.60400
Front grille	...	...	...	...	MK.913.17
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
Loudspeaker fixing clip (3)	...	...	...	...	A3.157.24

## CONTROL KNOBS

Tuning knob assembly	...	...	...	...	MK.858.20
Circlip for above	...	...	...	...	B.108.AF/1.9
Wavechange buttons (2)	...	...	...	...	MK.902.38
Volume control with knob	...	...	...	...	See R11

## STATION SCALE

Scale—Bronze	...	...	...	...	3113.105.00100
Scale—Blue	...	...	...	...	3113.105.00110

## 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/2.6 x 4
Drive cord	...	...	...	...	K299.ZZ./938
Tension spring for above	...	...	...	...	MK.730.72
Bracket and pulley assembly	...	...	...	...	MK.838.13
Screws for above (2)	...	...	...	...	B.054.ED/2 x 3
Pulley only	...	...	...	...	MK.965.69
Pin for above	...	...	...	...	MK.617.22

## SWITCHES

Wavechange switch assembly complete	...	...	...	...	MK.996.44
Operating bar	...	...	...	...	MK.922.77
Operating lever	...	...	...	...	MK.935.14
Loudspeaker/earpiece switch	...	...	...	...	MK.996.43
Screw for above	...	...	...	...	B.054.ED/2 x 4
On/off switch	...	...	...	...	See R11

## MISCELLANEOUS

Supports for rod aerial (2)	...	...	...	...	MK.962.98
Screws for above (2)	...	...	...	...	B.054.ED/2 x 8
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/2.6 x 3
Washer (2)		...	...	...	B.050.CD/2.6
Screw securing printed panel (2)		...	...	...	B.054.ED/2 x 4
Solder bush	...	...	...	...	A3.178.09
Solder tag	...	...	...	...	B.201.AF/2.6
Sleeving	...	...	...	...	K.558.LB/Size
"Remove" label	...	...	...	...	MK.282.46

## SEMICONDUCTORS

T1	...	...	...	...	AF.117
T2	...	...	...	...	AF.117
T3	...	...	...	...	AF.117
T4	...	...	...	...	OC.81D

T5	} Matched pair	...	...	...	...	OC.81
T6		...	...	...	...	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	...	...	...	940/AD.3207.HZ	MK.833.79
L13	Earphone and lead assembly	...	...	...	...	MK.516.44
L15-17	Driver transformer	...	...	...	...	

## CAPACITORS

C1 & 27	} Gang	...	...	...	...	49.002.48
C2 & 28		...	...	...	...	
C3		...	154pF	...	...	C.285.AA/D154E
C4		...	56pF	...	...	C.285.AA/S56E
C5		...	10,000pF	...	...	C.280.AA/P10K
C6		...	22,000pF	...	...	C.280.AA/P22K
C7		...	47,000pF	...	...	C.280.AA/P47K
C8		...	...	...	...	In L6/7
C9		...	32pF	...	...	C.426.AM/A32
C10		...	47,000pF	...	...	C.280.AA/P47K
C11		...	...	...	...	In L8/9
C13		...	10,000pF	...	...	MK.207.10
C14		...	47,000pF	...	...	C.280.AA/P47K
C15		...	...	...	...	In L10/11
*C18		...	10,000pF	...	...	MK.207.10
*C19		...	10,000pF	...	...	MK.207.10
C20		...	82pF	...	...	C.285.AA/A82E
C21		...	80uF	...	...	C.246.AR/A80
*C22		...	10,000pF	...	...	MK.207.10
C23		...	200uF	...	...	C.426.AM/C200
C25		...	3.2uF	...	...	C.426.AN/C3.2
C26		...	20uF	...	...	C.426.AM/C20
C27 & 1	} See C1/2	...	...	...	...	
C28 & 2		...	...	...	...	
* Some sets alternative		...	...	...	...	C3.31AA/R10K

## RESISTORS

R1	...	...	22,000Ω	...	...	B8.305.04A/22K
R2	...	...	1,000Ω	...	...	B8.305.04A/1K
R3	...	...	6,800Ω	...	...	B8.305.04A/6K8
R4	...	...	82,000Ω	...	...	B8.305.04A/82K
R5	...	...	470Ω	...	...	B8.305.04A/470E
R6	...	...	15,000Ω	...	...	B8.305.04A/15K
R7	...	...	3,900Ω	...	...	B8.305.04A/3K9
R8	...	...	1,000Ω	...	...	B8.305.04A/1K
R9	...	...	12,000Ω	...	...	B8.305.04A/12K
R10	...	...	470Ω	...	...	B8.305.04A/470E
R11	Volume control	...	5,000Ω	...	...	3113.108.01480
R12	...	...	22,000Ω	...	...	B8.305.04A/22K
R13	...	...	47,000Ω	...	...	B8.305.04A/47K
R14	...	...	1,500Ω	...	...	B8.305.04A/1K5
R15	...	...	0.39MΩ	...	...	B8.305.82A/390K
R16	...	...	1,500Ω	...	...	B8.305.04B/1K5
R17	...	...	100Ω	...	...	B.8.305.04B/100E
R18	...	...	1,500Ω	...	...	B8.305.04B/1K5
R19	...	...	100Ω	...	...	B8.305.04B/100E
R20	...	...	3.3Ω	...	...	B8.305.82A/3E3
R21	...	...	3.3Ω	...	...	B8.305.82A/3E3
R22	...	...	22Ω	...	...	B8.305.04A/22E
R23	...	...	560Ω	...	...	B8.305.04A/560E
R24	...	...	820Ω	...	...	B8.305.04A/820E
R27	...	...	56Ω	...	...	B8.305.04A/56E
R28	...	...	0.18MΩ	...	...	B8.305.04A/180K

## ACCESSORIES

*Carrying case complete	...	...	...	...	NP1627
*Carrying strap only	...	...	...	...	HY.141.13

\* These accessories must be ordered from the General Sales Division :—

## PHILIPS ELECTRICAL LTD.

(Southern)

P.O. Box 130,  
17, Beddington Farm Road,  
Croydon, Surrey

(Midlands & Northern)

Wellingborough Road,  
Sywell, Northants

(Scotland)

Well Hall Road,  
Hamilton, Lanarkshire