

# SERVICE INFORMATION FOR THE PHILIPS PORTABLE RECEIVER L3G04T/01



## 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

Height 8 $\frac{1}{4}$ in. Width 13 $\frac{1}{4}$ in. Depth 4in.

## UNCASING

### (a) Separating the Cabinet

Place receiver face downwards on a soft cloth. Release the two retaining screws (captive) at the back of the receiver and lift off the backplate. To remove the front moulding release the front fixing screws, one either side at the top, two at the bottom.

### (b) Releasing the I.F. Panel

With the cabinet rear removed, most components will be accessible. If it is necessary to replace components or take measurements on the printed side of the board, this panel may need to be released. Unsolder wiring as required and remove the end fixing bracket nearest to the volume control.

### (c) Removing Chassis Assembly

The main chassis, tuning and drive assemblies may be detached from the front moulding as one unit. Remove four fixing screws and unsolder both the speaker leads and earth return wires to speaker chassis. The A.F. panel is secured by two spring clips.

## INTRODUCTION

The L3G04T/01 is a M.W.-L.W. battery-operated portable radio. Six transistors and one crystal diode are used. Sockets are provided for connection of car radio aerial, headphones and tape recorder.

## TRANSISTOR COMBINATION

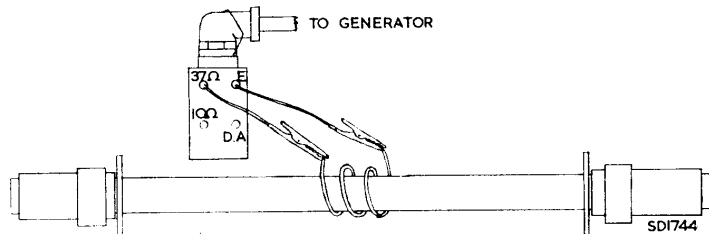
T1	AF117	Frequency changer.
T2	AF117	I.F. Amplifier.
T3	OC71	Detector.
T4	OC81D	Driver.
T5	OC81	Output (Matched Pair).
T6	OC81	
X1	OA70	A.G.C. rectifier.

## BATTERY SUPPLIES

2×9V D.C., i.e. two of the following battery types :—  
Ever Ready PP9, Vidor T6007.

## BATTERY CONSUMPTION

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



CONNECTIONS FOR R.F. TRIMMING

OFFICIAL SERVICE AGENT :—

**AMALGAMATED ELECTRIC SERVICES LTD.**

WADDON FACTORY ESTATE

CROYDON

SURREY

Telephone

CROYDON

7 7 2 2

## TRIMMING INSTRUCTIONS

### Pointer Setting

Turn gang to maximum and adjust pointer to the '1' in ALL-OUIS on the station scale.

### General

(a) Output should be observed with an output meter set for a  $30\Omega$  load, trimming level 50mW. Alternatively an A.C. Voltmeter (2.5V range) with a  $30\Omega$  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.

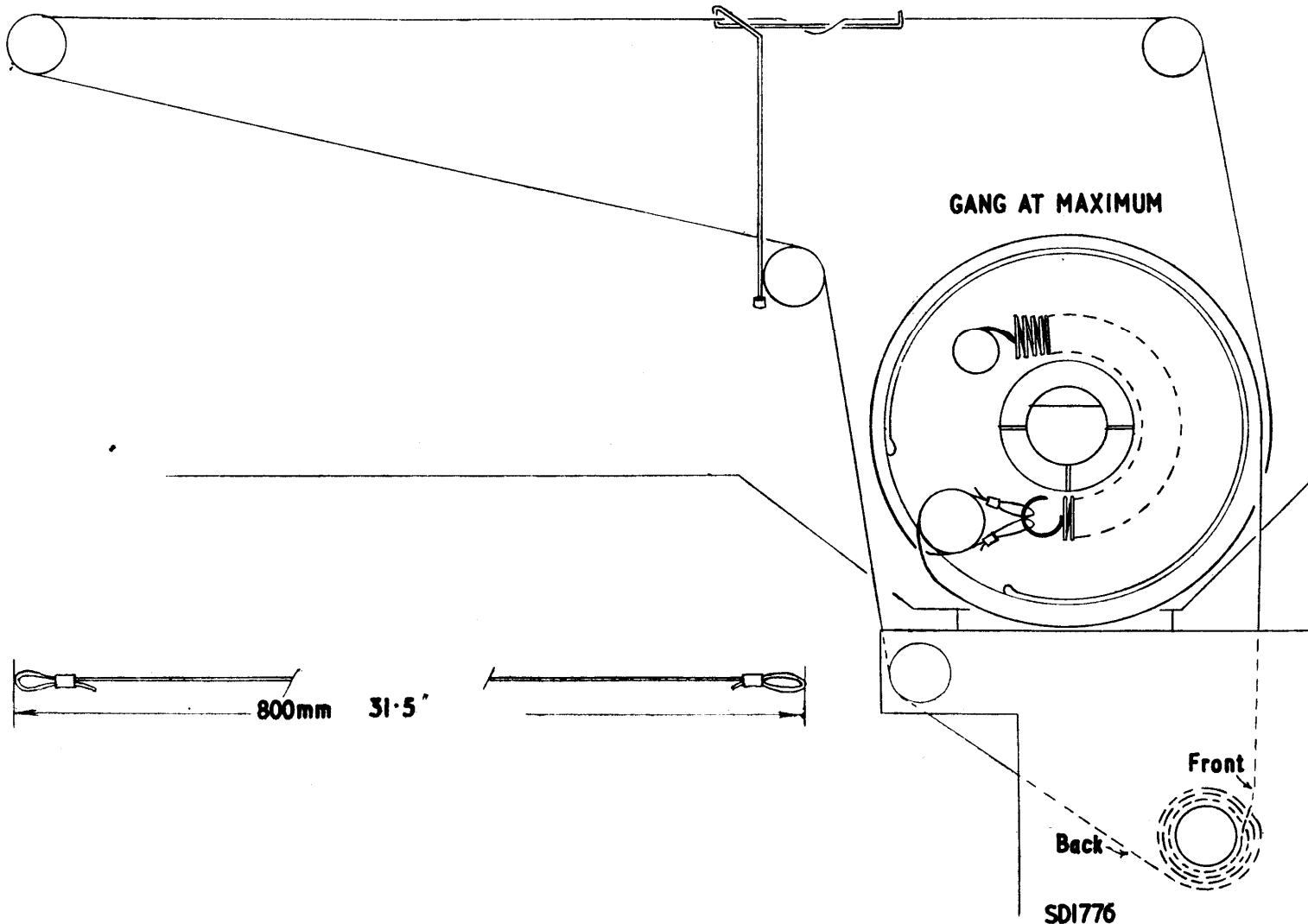
### L.W. trimming

#### (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

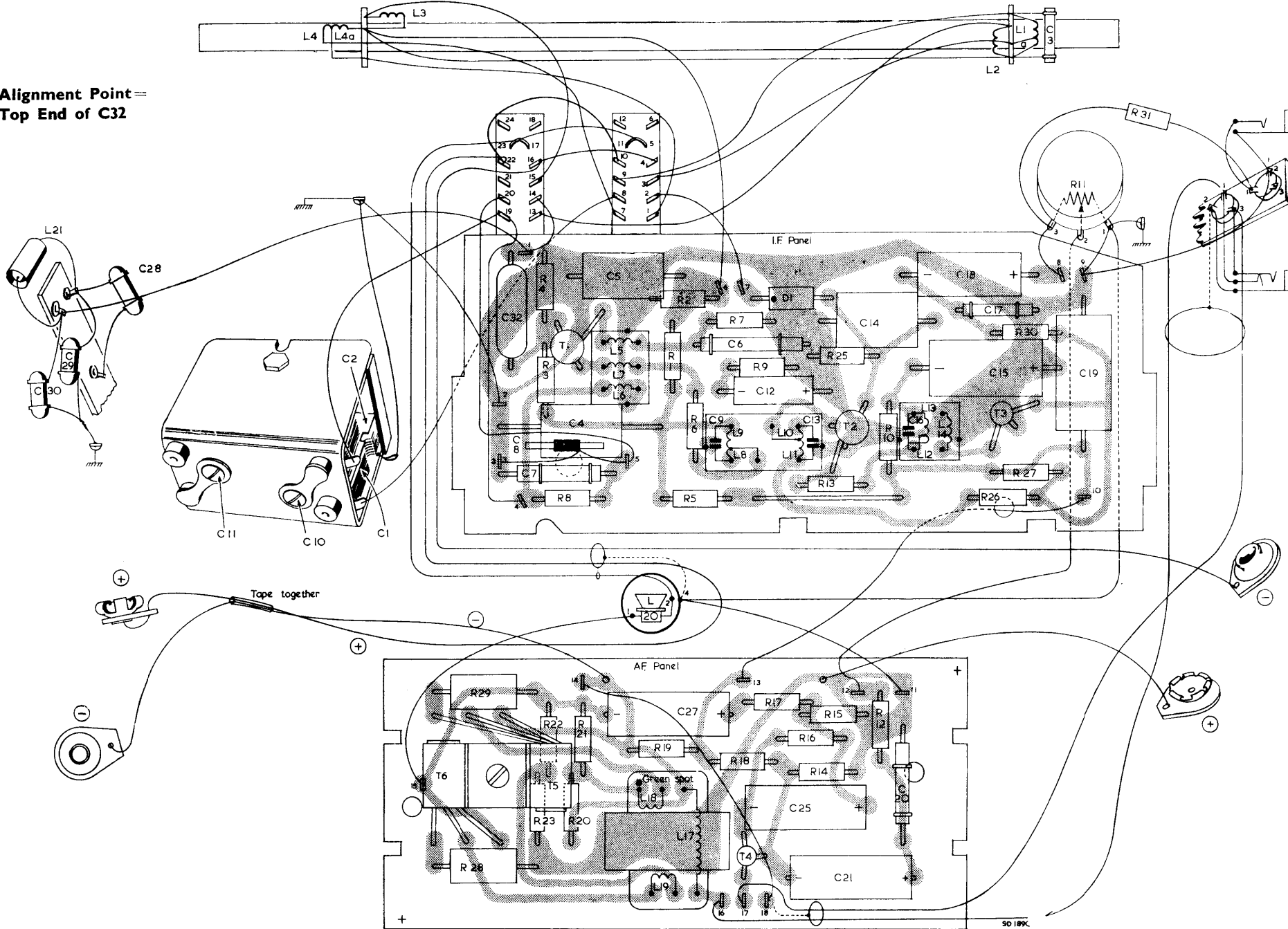
With the pointer position unaltered connect the generator to the coupling coil and set it to 180 Kc/s. Adjust L1/2 for maximum output.





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

Alignment Point =  
Top End of C32



50 189c

LAYOUT DIAGRAM

# SPARE PARTS LIST

## CABINET ASSEMBLY

Front moulding with grille	...	...	...	HY.114.47
Escutcheon for knob	...	...	...	MK.992.14
Clips for A.F. panel (2)	...	...	...	MK.083.03
" Transistor " plate	...	...	...	MK.682.95
Cabinet rear—wood	...	...	...	MK.997.30
Ventilation grille	...	...	...	P5.350.52
Handle assembly	...	...	...	MK.836.72
Screws for handle (2)	...	...	...	MK.962.47
Washers for handle (2)	...	...	...	MK.451.03
Fixing nuts for above (2)	...	...	...	B.801.AB/4N
Backplate	...	...	...	MK.989.22
Screws for Backplate (2)	...	...	...	MK.962.22
Circlips (2)	...	...	...	B.108.AF/4
Escutcheon for aerial socket	...	...	...	MK.910.26
Escutcheon for output sockets	...	...	...	MK.992.25
Pins for above (3)	...	...	...	A3.314.02
Plate behind escutcheon	...	...	...	MK.282.21
Feet (4)	...	...	...	MK.910.29
Fixing screws for feet (4)	...	...	...	B.056.AA/3 × 10
Clips for backplate	...	...	...	MK.048.12
Bolts for speaker	...	...	...	B.070.AD/8N × 17
Retaining clips for scale pins (2)	...	...	...	MK.990.35
Spire clips (4)	...	...	...	MK.990.23
<b>Control Knobs</b>				
Volume	...	...	...	MK.857.59
Tuning	...	...	...	MK.857.58
Spring clip (2)	...	...	...	MK.750.90
Felt ring	...	...	...	MK.450.99
<b>Station Scale</b>				
Pins for scale (2)	...	...	...	MK.707.76
Diffuser plate	...	...	...	MK.616.94
Pillars for above (2)	...	...	...	MK.989.16
Spire clips (4)	...	...	...	MK.605.07
Foam strip	...	...	...	MK.927.09
Pointer Assembly	...	...	...	MK.682.10
				MK.989.11

## CHASSIS ASSEMBLY

<b>Push Button Switch Assembly</b>				
Push button (3)	...	...	...	MK.967.50
	...	...	...	MK.263.37
<b>Tuning Spindle Assembly</b>				
Special washer	...	...	...	MK.004.56
Circlip	...	...	...	B.046.AF/6
	...	...	...	B.108.AF/4
<b>Drive Assembly</b>				
Drive drum	...	...	...	MK.963.16
Spring for above	...	...	...	MK.750.90
Tension spring for drive cord	...	...	...	MK.740.56
Drive cord—770mm.	...	...	...	K.299.ZZ/923
Bushes for above (2)	...	...	...	B.002.AF/3 × 5
Pulley (2)	...	...	...	A3.680.02
Circlip (2)	...	...	...	B.108.AF/1.9
Pulley mounting pin (2)	...	...	...	A3.602.31

## 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

Ferrite aerial rod	...	...	...	MK.425.06
Support for above (2)	...	...	...	MK.281.58
Car aerial socket assembly	...	...	...	MK.967.40
Connector stud for batteries (2)	...	...	...	MK.955.61
Connector socket for batteries (2)	...	...	...	MK.955.60
Nut for R11	...	...	...	MK.927.05
Grommets for gang mounting (3)	...	...	...	08.008.73
Screws for gang mounting (3)	...	...	...	B.808.AD/4N × 3/4
Distance pieces for above (3)	...	...	...	B.001/AC/4.1 × 6 × 4
Continental jack socket—headphone	...	...	...	MK.967.67
British jack socket—tape	...	...	...	MK.967.62
Plug for jack sockets	...	...	...	42131
Slotted nut (2)	...	...	...	MK.927.34
Washer (2)	...	...	...	MK.451.10
Sleeving	...	...	...	K.558.LB/Size
License plate	...	...	...	MK.707.29
Type label	...	...	...	MK.706.42
Battery lead—red	...	...	...	R.903.KA/800C
Battery lead—black	...	...	...	R.903.KA/800A
Spire fix (4)	...	...	...	MK.927.09

## TRANSISTORS, ETC.

T1	...	...	...	AF117
T2	...	...	...	AF117
T3	...	...	...	OC71
T4	...	...	...	OC81D
T5	} Matched pair {	...	...	OC81
T6		...	...	OC81
<b>Diode</b>				
X1	...	...	...	OA70

## COILS and TRANSFORMERS

L1-2	Aerial coil—L.W.	...	...	MK.570.22
L3-4	Aerial coil—M.W.	...	...	MK.570.21
L5-7	Oscillator coil	...	...	MK.570.23
L8-11	1st I.F. transformer	...	...	MK.570.24
L12-14	2nd I.F. transformer	...	...	MK.570.27
L17-19	A.F. driver transformer	...	...	MK.516.10
L20	Loudspeaker	...	...	ND.2350HX
L21	Choke	...	...	MK.550.29

### Coils for Coils

L5, 8, 11, 14	...	...	...	K5.120.00
---------------	-----	-----	-----	-----------

## HEADPHONE ASSEMBLY

*Headphone assembly complete	...	...	...	AF.9110/11
Capule	...	...	...	EL.3593/07
Earloop	...	...	...	V3.053.88
Lead and plug assembly	...	...	...	A3.814.43
Jack plug only	...	...	...	42131

\* This accessory is obtainable from :—

**PHILIPS ELECTRICAL LTD.,**  
Century House,  
Shaftesbury Avenue,  
London, W.C.2.

## 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	49.005.51/100pF
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.AC/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

† Some sets only

## RESISTORS

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