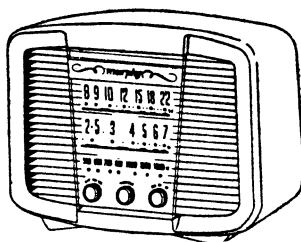


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# MURPHY SERVICE INSTRUCTIONS



## SPECIFICATION

MAINS SUPPLY:		90-160 and 190-250 volts a.c., 40-100 c/s.
CONSUMPTION:		38 watts approximately
WAVE BANDS:	M:	525-1610 Kc/s (571-186 m.)
	S1:	2.16-7.4 Mc/s (139-40.5 m.)
	S2:	7.3-22 Mc/s (41.1-13.6 m.)
INTERMEDIATE FREQUENCY:		470 Kc/s
VALVES:	Ediswan or Mazda:	10C1, 10F9, 10LD3, 10P14, U404
SCALE LAMP:		6.5 volts, 0.3 amp., m.e.s.
LOUDSPEAKER:	Type:	5 in. (12.7 cm.) dia., permanent magnet
	Impedance:	3 ohms
CABINET DIMENSIONS:		10 in. (25.4 cm.) high, 14½ in. (36.8 cm.) wide, 6½ in. (17.1 cm.) deep
WEIGHT:		12 lb. (5.5 Kg.)

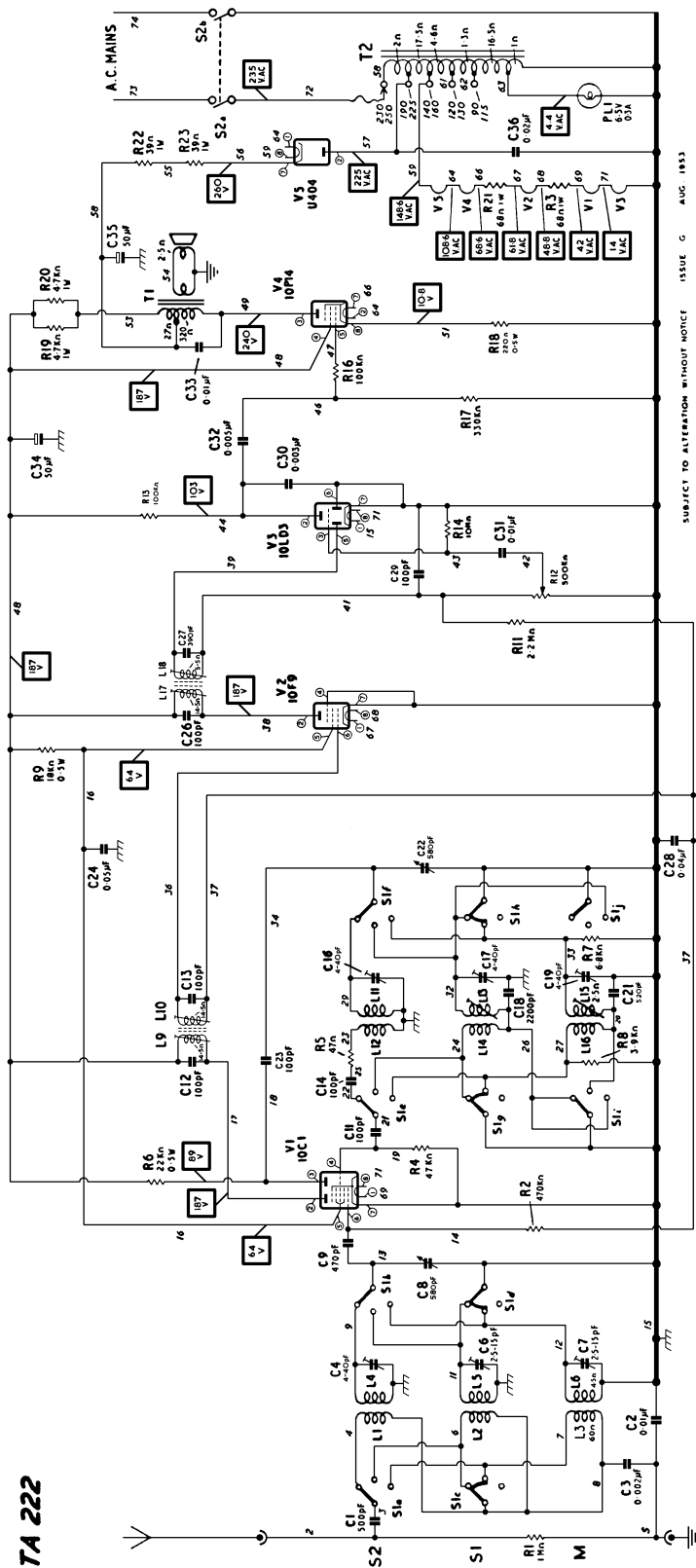
*Issued by*

**MURPHY RADIO LTD · WELWYN GARDEN CITY  
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**Telephone: Welwyn Garden 3434**

**FOREIGN TELEGRAMS AND CABLES: RADMURPHY, LONDON**

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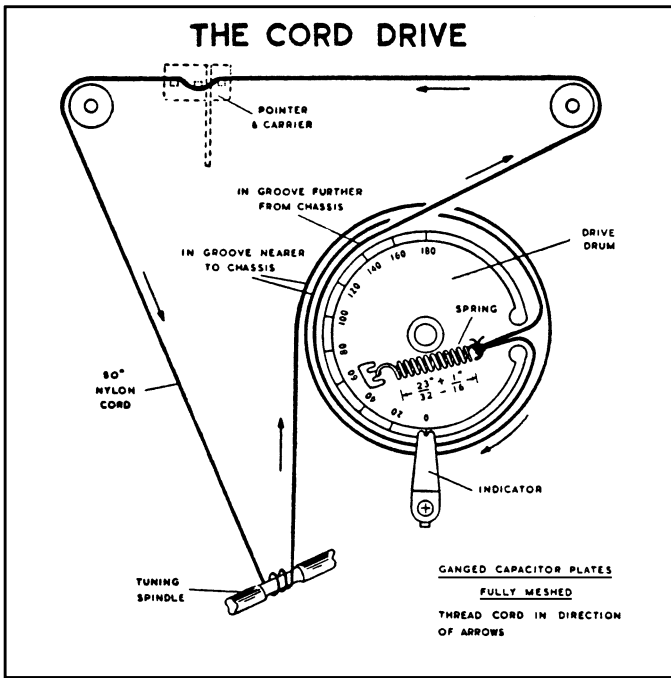
**In later sets, R22 and R23 are deleted and replaced by one 180Ω, 6W, wire wound resistor Part No. 51082. This resistor is located on the top of the chassis in front of V5.**

Circuit voltages are shown within squares and were measured between chassis and the point indicated using a 20,000 Ω/V meter while the receiver was switched to the M band under no-signal conditions.

Where the resistance of a coil is less than 1 ohm the value is omitted.

Component terminals and connecting leads are identified by test point (t.p.) numbers which correspond with those appearing on the chassis drawings. The valve pin numbers are shown within small circles. All the valves are Ediswan or Mazda types. Alternative valves: V2 — Mullard UF41 V3 — Mullard UBC41

SUBJECT TO ALTERATION WITHOUT NOTICE ISSUE G AUG. 1953

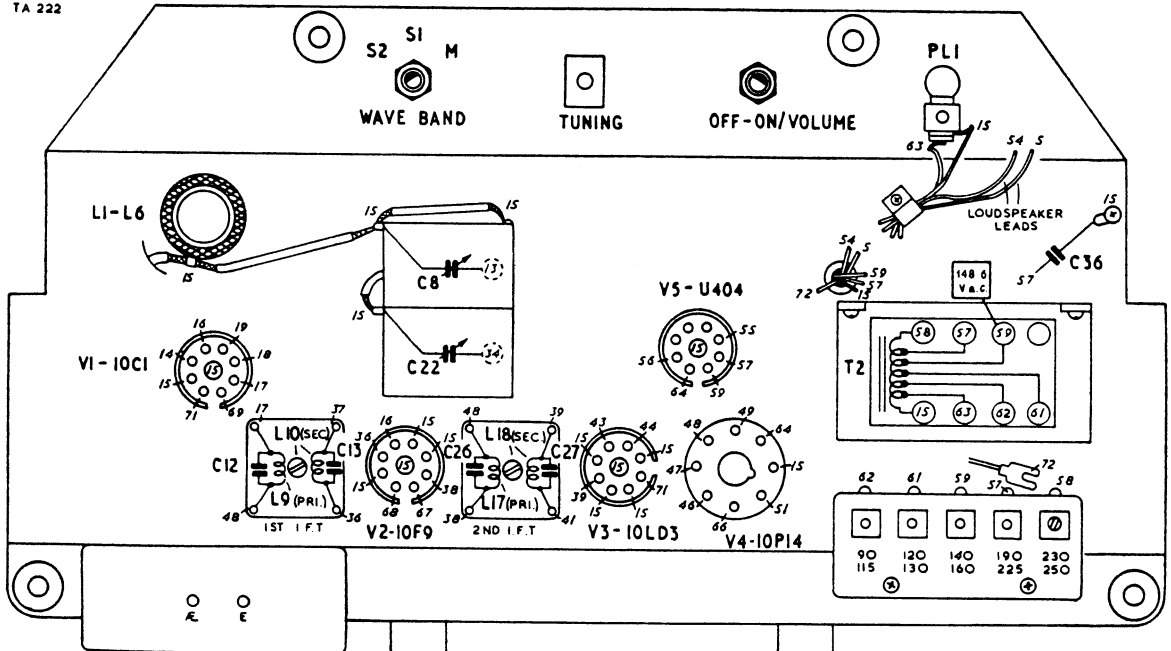


### PARTS LIST ABBREVIATIONS

- cer. — ceramic
- p.s.m. — protected silvered mica
- tub. — paper tubular
- i.s. tub. — insulated sealed paper tubular (metal case)
- m. tub. — metallized paper tubular
- elec. — electrolytic
- w.w. — wire wound
- W — wattage rating
- V a.c. — a.c. voltage rating
- V d.c. — d.c. voltage rating
- log. — logarithmic law

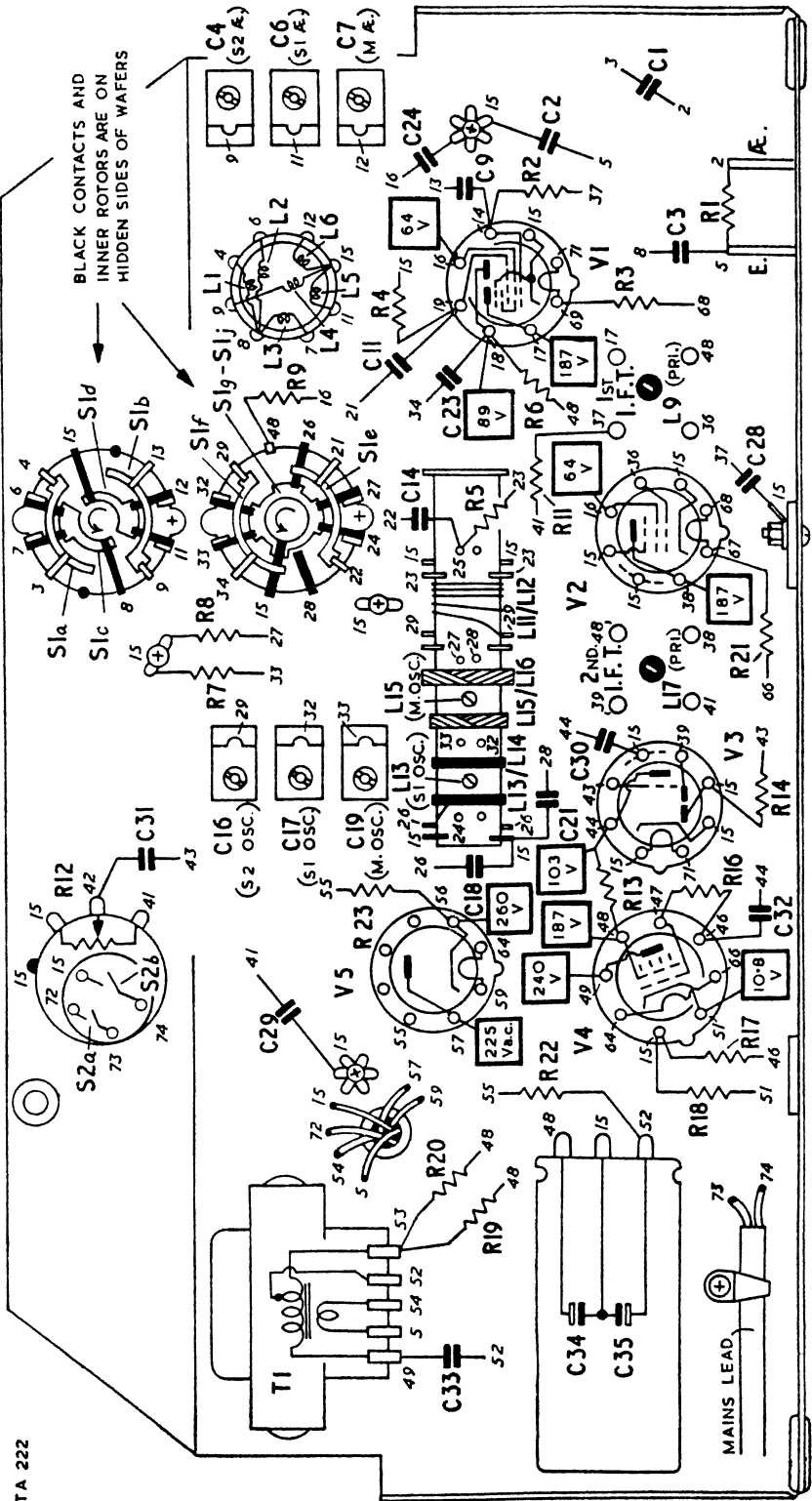
C	12	13	8	26	27	36	C
L	1-6	9 10	22	17 18			L
Misc	V1	V2	V3	V5	V4	T2	PL 1

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The layout of the top of the chassis

C	33	29	31	16	17	30	14	28	11	9	4	6	7	C		
L	34	35	32	18	19	21	13	14	15	16	11	12	3	24	2	1
R	19	20	18	17	23	12	7	8	7	11	9	4	5	6		
MISC	T1	S2a	S2b	V5	V4	V3	S1a	S1c	V2	S1f	S1b	S1d	V1			
							S1e	S1g-S1j								



The layout of the underside of the chassis

# CIRCUIT ALIGNMENT

**Drum and pointer settings.** Before aligning the r.f. circuits, make sure that 0° on the drive drum registers with the V on the indicator when the ganged capacitor plates are fully meshed (not necessarily against the stop). After the chassis is fitted in the cabinet, the pointer must register with the short vertical lines at the left-hand end of each tuning scale; if necessary, move the pointer carrier along the cord.

**Receiver output.** Make all adjustments for maximum output with the volume control at maximum. Adjust the signal generator attenuator so that this output does not exceed 180 mW, or 0.7V across the loudspeaker speech coil.

**Trimming tool.** A non-metallic tool must be used for adjusting the i.f. transformer cores.

**Receiver oscillator frequency.** This is higher than the signal frequency on all wave bands.

**M & S1 oscillator coil trimmers.** For maximum inductance, the adjusting slot must be at right-angles to the axis of the coil former.

**Replacement oscillator and aerial coils.** The inductance of the S1 and S2 aerial and S2 oscillator tuned windings must be adjusted after the coil is fitted to the chassis. Referring to the circuit alignment table, commence at the low frequency end of the band concerned and adjust the spacing of the end turns of the winding. Then adjust the trimming capacitors at the high frequency end of the band. Repeat these adjustments until there is no further improvement and finally seal the winding with wax.

## CIRCUIT ALIGNMENT TABLE

CIRCUIT	NOTES	SIG. GEN. FREQUENCY	SIG. GEN. TERMINATION	CONNECT SIG. GEN. TO	DRIVE DRUM SETTING	ADJUSTMENTS
2nd i.f.t.	Unscrew sec. core (top of can) before starting adjustments	470 Kc/s	Via 0.01µF capacitor	V2 grid 1 (pin 6)	0°	L17 (pri.) under chassis L18 (sec.) top of can DO NOT RE-ADJUST PRI.
1st i.f.t.	As above. Switch to M band	470 Kc/s	As above	M ac. trimmer (C7)	0°	L9 (pri.) under chassis L10 (sec.) top of can DO NOT RE-ADJUST PRI.
M	Repeat osc. circuit adjustments until there is no further improvement	600 Kc/s (500 m.)	Dummy Aerial	Aerial Socket	40°	L15 (osc.) under chassis
S1	As above. Set C17 to lower capacitance peak	1364 Kc/s (220 m.)	As above	As above	159°	C19 (osc.) under chassis C7 (ac.) under chassis
		2.5 Mc/s (120 m.)	As above	As above	36.5°	L13 (osc.) under chassis
S2	Set C16 to lower capacitance peak. Rock tuning control for maximum sensitivity while adjusting C4	6.1 Mc/s (49.2 m.)	As above	As above	159°	C17 (osc.) under chassis C6 (ac.) under chassis
		17.79 Mc/s (16.87 m.)	As above	As above	149°	C16 (osc.) under chassis
		21.6 Mc/s (13.9 m.)	As above	As above	172°	C4 (ac.) under chassis
		8.5 Mc/s (35.3 m.)	As above	As above	37°-39°	No adjustments

## PARTS LIST (Electrical Components)

PART NO.	CIRCUIT NO.	VALUE	TOLERANCE AND REMARKS	PART NO.	CIRCUIT NO.	VALUE	TOLERANCE AND REMARKS
57773	C1	500 pF	25%, m. tub., 300V a.c.	25253	R7	6.8 K $\Omega$	10%, 0.4W
51766	C2	0.01 $\mu$ F	20%, i.s. tub., 275V a.c.	25157	R8	3.9 K $\Omega$	10%, 0.4W
57774	C3	2000 pF	20%, m. tub., 300V a.c.	25421	R9	18 K $\Omega$	10%, 0.5W
56322	C4	4-40 pF	Trimmer, S2 ae.	27525	R11	2.2 M $\Omega$	20%, 0.4W
56326	C6	2.5-15 pF	Trimmer, S1 ae.	52821	R12	500 K $\Omega$	Volume control, log.
56326	C7	2.5-15 pF	Trimmer, M ae.	27269	R13	100 K $\Omega$	20%, 0.4W
55079	C8	580 pF	Ganged capacitor, ae. section	27653	R14	10 M $\Omega$	20%, 0.4W
54083	C9	470 pF	20%, cer., 500V d.c.	27269	R16	100 K $\Omega$	20%, 0.4W
23607	C11	100 pF	10%, p.s.m., 350V d.c.	27365	R17	330 K $\Omega$	20%, 0.4W
52630	C12	100 pF	5%, p.s.m., 350V d.c.	24685	R18	220 $\Omega$	10%, 1W
52630	C13	100 pF	5%, p.s.m., 350V d.c.	25215	R19	4.7 K $\Omega$	10%, 1W
54070	C14	100 pF	20%, cer., 500V d.c.	25215	R20	4.7 K $\Omega$	10%, 1W
56322	C16	4-40 pF	Trimmer, S2 osc.	24511	R21	68 $\Omega$	10%, 1W
56322	C17	4-40 pF	Trimmer, S1 osc.	24415	R22	39 $\Omega$	10%, 1W
23656	C18	2200 pF	10%, p.s.m., 350V d.c.	40463	R23	39 $\Omega$	10%, w.w., 1W
56322	C19	4-40 pF	Trimmer, M. osc.				
28288	C21	520 pF	1%, p.s.m., 350V d.c.				
55079	C22	580 pF	Ganged capacitor, osc. section				
23607	C23	100 pF	10%, p.s.m., 350V d.c.				
41403	C24	0.05 $\mu$ F	20%, tub., 350V d.c.				
52630	C26	100 pF	5%, p.s.m., 350V d.c.				
52633	C27	390 pF	5%, p.s.m., 350V d.c.				
49454	C28	0.04 $\mu$ F	25%, m. tub., 150V d.c.	61408	L1	—	S2 ae. } S1 ae. } coupling
54070	C29	100 pF	20%, cer., 500V d.c.		L2	—	M ae. } S2 ae. } tuned
49448	C30	0.003 $\mu$ F	25%, m. tub., 350V d.c.		L3	60 $\Omega$	S1 ae. } M ae. } tuned
49447	C31	0.01 $\mu$ F	25%, m. tub., 150V d.c.		L4	—	M ae. } Pri. } 1st i.f.t.
53062	C32	0.005 $\mu$ F	25%, i.s. tub., 500V d.c.	58116	L5	—	Sec. } Tuned } S2 osc.
41419	C33	0.01 $\mu$ F	20%, tub., 1000V d.c.		L6	4.5 $\Omega$	Coupling } S1 osc.
56152	C34	50 $\mu$ F	+50%, -20%, elec., 275V d.c.		L9	14.5 $\Omega$	Tuned } M osc.
	C35	50 $\mu$ F			L10	14.5 $\Omega$	Coupling } Tuned } S2 osc.
41423	C36	0.02 $\mu$ F	20%, tub., 750V d.c.	61409	L11	—	Coupling } S1 osc.
					L12	—	Tuned } M osc.
27461	R1	1 M $\Omega$	20%, 0.4W		L13	—	Coupling } Tuned } 2nd i.f.t.
27397	R2	470 K $\Omega$	20%, 0.4W	58117	L14	—	Pri. } Sec. } output transformer
24511	R3	68 $\Omega$	10%, 1W		L15	2.5 $\Omega$	Coupling } Tuned } M osc.
27205	R4	47 K $\Omega$	20%, 0.4W		L16	—	Coupling } Pri. } 2nd i.f.t.
24421	R5	47 $\Omega$	10%, 0.4W	61407	L17	14.5 $\Omega$	Sec. } Sec. } output transformer
25453	R6	22 K $\Omega$	10%, 0.5W		L18	5.5 $\Omega$	Pri. } Sec. } output transformer
				61407	T1	320+27 $\Omega$	output transformer
				52940	T2	43 $\Omega$ (total)	Mains transformer

## PARTS LIST (Mechanical Components)

PART NO.	DESCRIPTION	REMARKS	PART NO.	DESCRIPTION	TOLERANCE AND REMARKS
61417	Back	for cabinet	52591	Plate, mounting	for chassis, near V4
53450	Bracket	support for ganged capacitor rear	52592	Plate, mounting	for chassis, near aerial panel
61421	Bracket, mounting	for lamp holder	37975	Plug, black	for earth
57426	Bracket and pulley	near volume control	37974	Plug, red	for aerial
57427	Bracket and pulley	near wave band switch	61438	Pointer and carrier	
61429	Cabinet		49593	Pulley (2)	for cord drive
53453	Clamp	for C1	53434	Retainer (4)	for i.f.t. cores
34181	Clamp	for C34/C35	61415	Scale, tuning	Africa sets
14347	Clamp	for loudspeaker and scale lamp leads	61414	Scale, tuning	India sets
769	Clamp	for mains lead	61937	Scale, tuning	Portugal sets
55897	Clamp	for osc. coil	61413	Scale, tuning	Welwyn sets
50062	Clamp, "fish tail"	for aerial coil	103842	Screw, S.T. No. 10	for chassis rear mounting plates
37385	Clip	for fastening scale lamp leads to cabinet		Type Y $\frac{1}{8}$ in. (4)	
1871/2	Compound	for i.f.t. cores	103903	Screw, S.T. No. 6	for pointer guide rail and lamp holder bracket
2033/5	Cord, Nylon	50 in. (127 cm.) for tuning drive		Type Y $\frac{1}{8}$ in. (3)	
46910	Core, iron dust (4)	for i.f. transformers	103877	Screw, S.T. No. 8	for loudspeaker and cabinet back fixing
57421	Dowell (2)	for supporting front of chassis in cabinet		Type Y $\frac{1}{8}$ in. (2)	
53774	Drum, tuning	for ganged capacitor	10413	Screw, grub	for control knobs
15633	Eyelet (2)	inside V1 mounting grommets		2 BA $\frac{1}{8}$ in. (3)	
42844	Grommet (2)	for V1 mounting	19642	Screw, grub	for tuning drum
49883	Grommet (7)	for chassis and ganged capacitor mounting		2 BA $\frac{1}{8}$ in.	
57422	Guide, rail	for pointer	61349	Screw, plastic	retainer for top of tuning scale
57418	Indicator, calibration		53033	Spacer (2)	inside ganged capacitor front mounting grommets
61428	Knob (2)	for volume and tuning controls	61424	Spindle, tuning	for tuning spindle
61449	Knob	for wave band switch	51171	Spring, retaining	for drive cord
61420	Label for back	Africa sets	19460	Spring, tensioning	waveband
61419	Label for back	India sets	61430	Switch	for mains voltage adjustment panel
61418	Label for back	Welwyn sets	40134	Tag (5)	
16882	Lamp	6.5V 0.3A	40135	Terminal, spade	for mains voltage adjustment for V1, V2, V3, V5 for V4
61416	Lamp holder		51451	Valve holder, B8A (4)	
51813	Loudspeaker	5 in. (12.7 cm.) dia. for aerial and earth	5687	Valve holder, I.O.	
62228	Panel and sockets	for mains voltage adjustment	47955	Washer (4)	for cabinet back fixing
53694	Panel and tags	support for ganged capacitor rear	49910	Washer, cup (2)	for chassis fixing
53451	Pillar, screw	support for ganged capacitor rear	34588	Washer, felt (3)	for control knobs
49506	Pin (2)	rivet for pulleys	47953	Washer, large (4)	at each side of ganged capacitor front mounting grommets