

MURPHY SERVICE INSTRUCTIONS

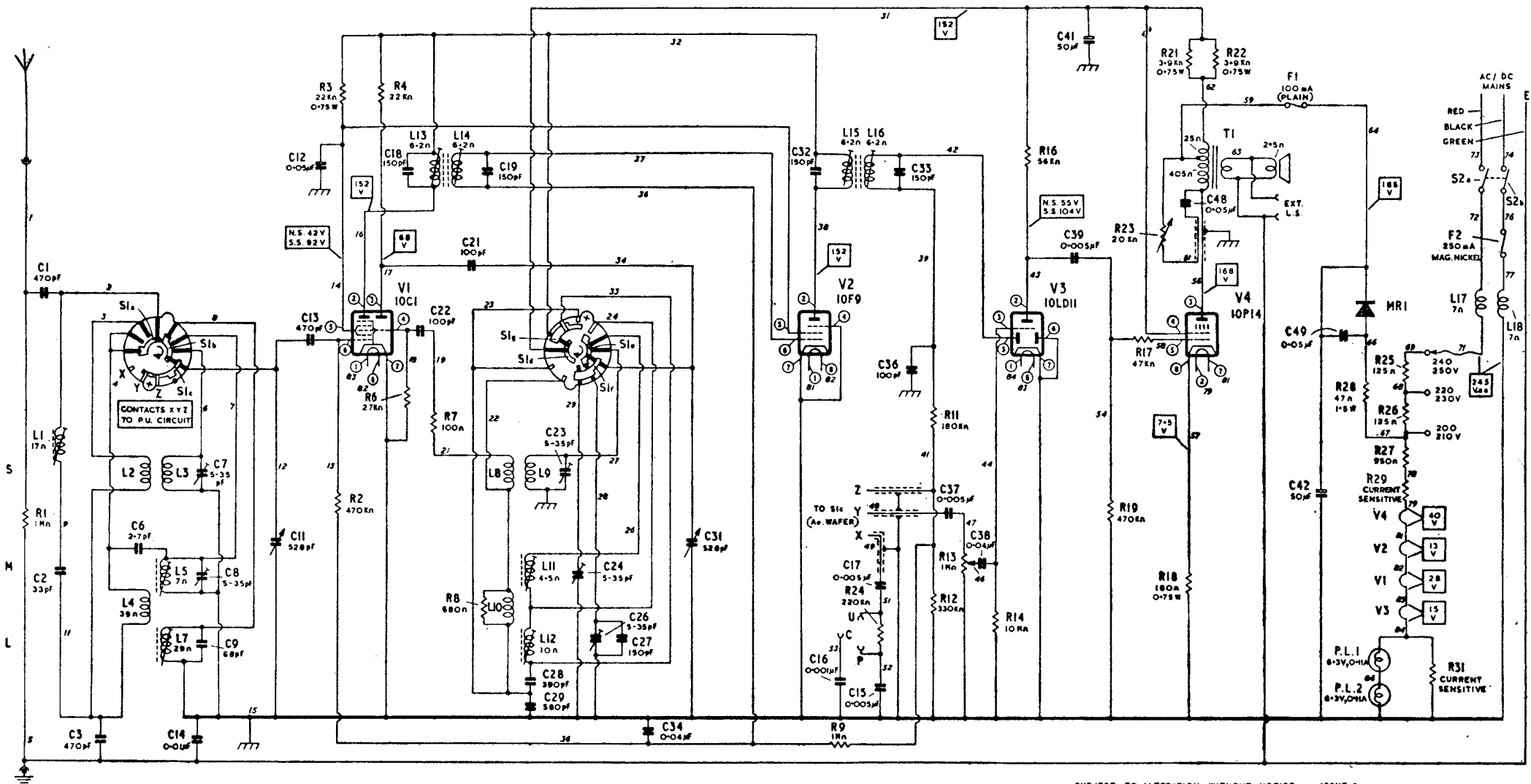


SPECIFICATION

MAINS SUPPLIES:		200-250 volts a.c., 25-60 c/s, or 200-250 volts d.c.
CONSUMPTION:		39 watts average
WAVE BANDS:	L:	1000-2000 metres
	M:	187-540 metres
	S:	16.8-50.4 metres
INTERMEDIATE FREQUENCY:		470 Kc/s
VALVES:	Mazda:	10C1, 10F9, 10LD11, 10P14
SCALE LAMPS:		Two 6.3 volts, 0.11 amp., m.e.s.
LOUDSPEAKER:	Type:	8 in. dia., permanent magnet
	Impedance:	3 ohms
CABINET DIMENSIONS:		16 in. high, 19 in. wide, 8 in. deep
WEIGHT:		16 lb. approximately
RELEASED:		May 1954
PRICE:		£18 15s. od. plus P.T.

Issued by

MURPHY RADIO LTD
WELWYN GARDEN CITY · HERTS
PHONE: WELWYN GARDEN 3434



SUBJECT TO ALTERATION WITHOUT NOTICE ISSUE B.

C16 should be 0.01µF

The wave band switch (S1a-S1g) is shown in the long wave position and is drawn as seen from the rear; rotate clockwise for medium, short, and gramophone. The black contacts and inner rotors are on the hidden sides of the wafers and the lugs marked with a cross are the nearer to the chassis. Blank positions and anchoring tags are shown by a spot.

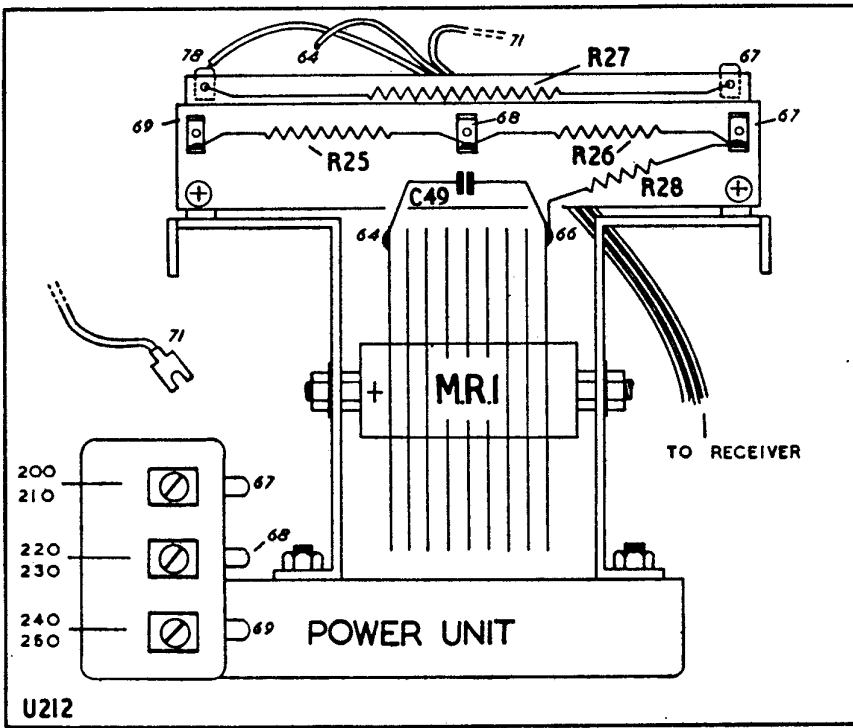
Circuit voltages are shown within rectangles and were measured with a 20KΩ/V meter while the receiver was switched to the M band. Two readings are quoted for those points where the voltage differs appreciably from No-Signal

(N.S.) to Strong-Signal (S.S.) conditions.

Where the resistance of a coil is less than one 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.
Squegging. If squegging occurs when fitting a new frequency changer valve, a 39Ω resistor (Part No. 24389) should be added in series with C23, and C22 changed to 82pF (Part No. 28179).

PARTS LIST ABBREVIATIONS



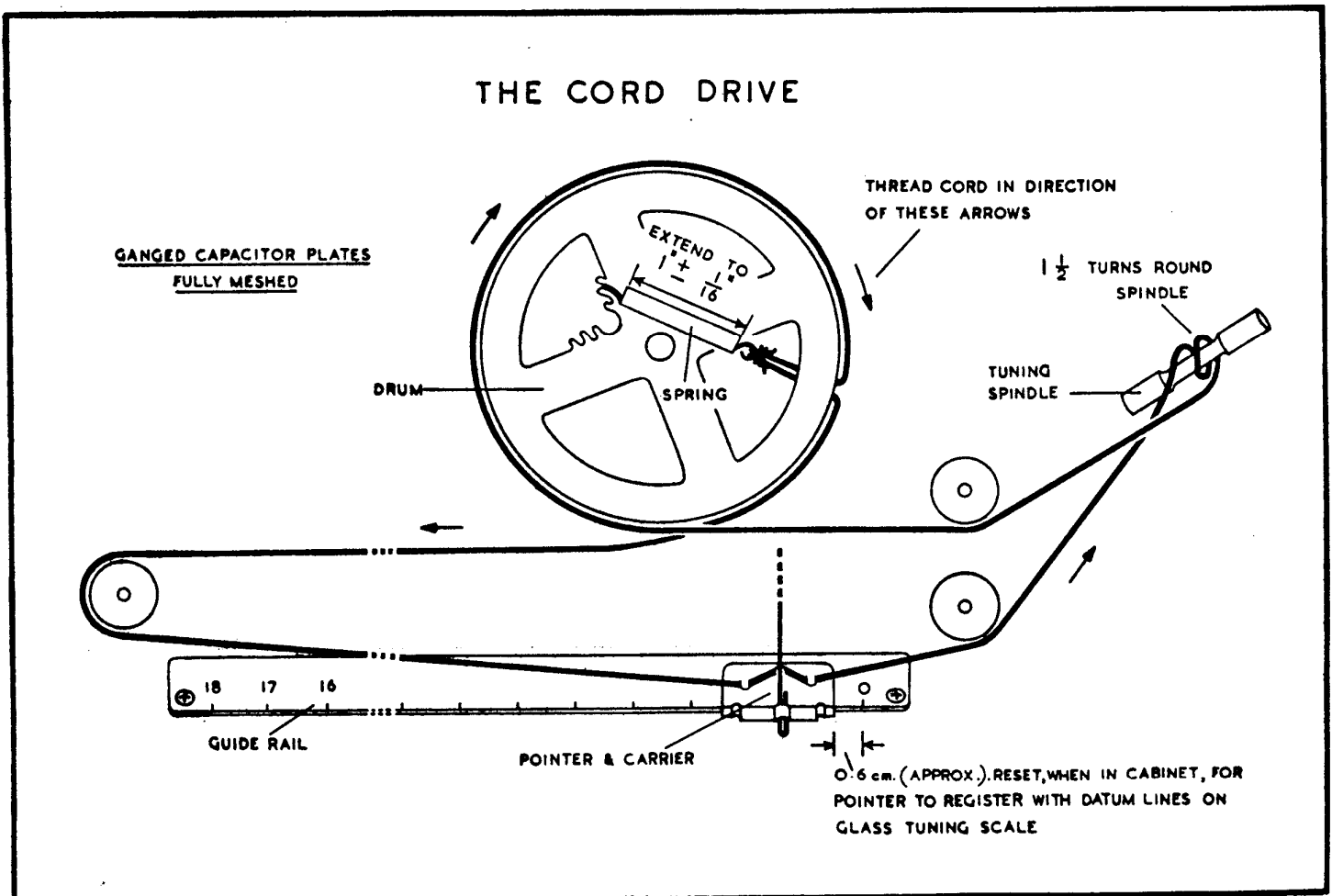
- cer. — ceramic
- p.s.m. — protected silvered mica
- tub. — paper tubular
- s.tub. — sealed paper tubular (metal cased)
- m.tub. — metallized paper tubular
- elec. — electrolytic
- V d.c. — d.c. voltage rating
- V a.c. — a.c. voltage rating
- W — wattage rating
- w.w. — wire wound
- ve — negative temperature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

—*—

IMPORTANT

When removing the chassis, take care not to scratch the tuning scale. To remove the tuning scale, first remove the loudspeaker and the power unit.

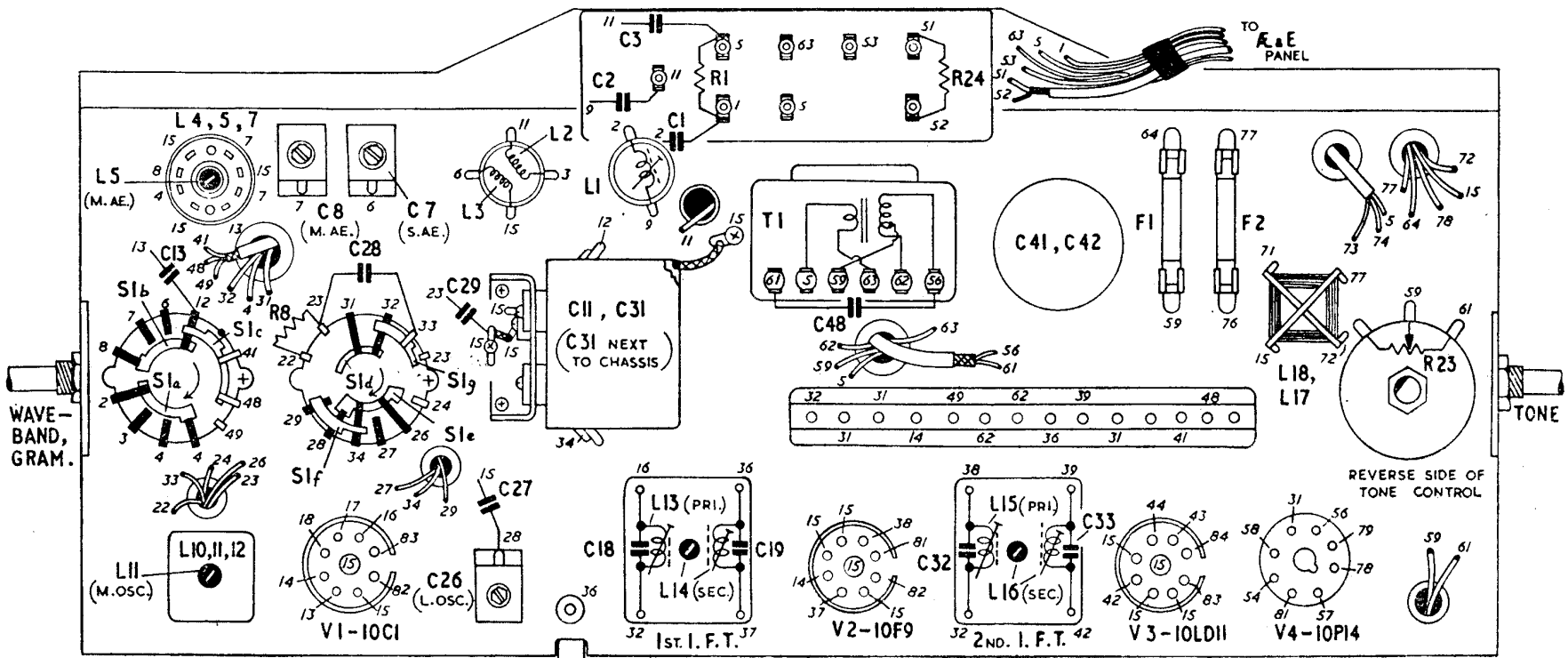
THE CORD DRIVE



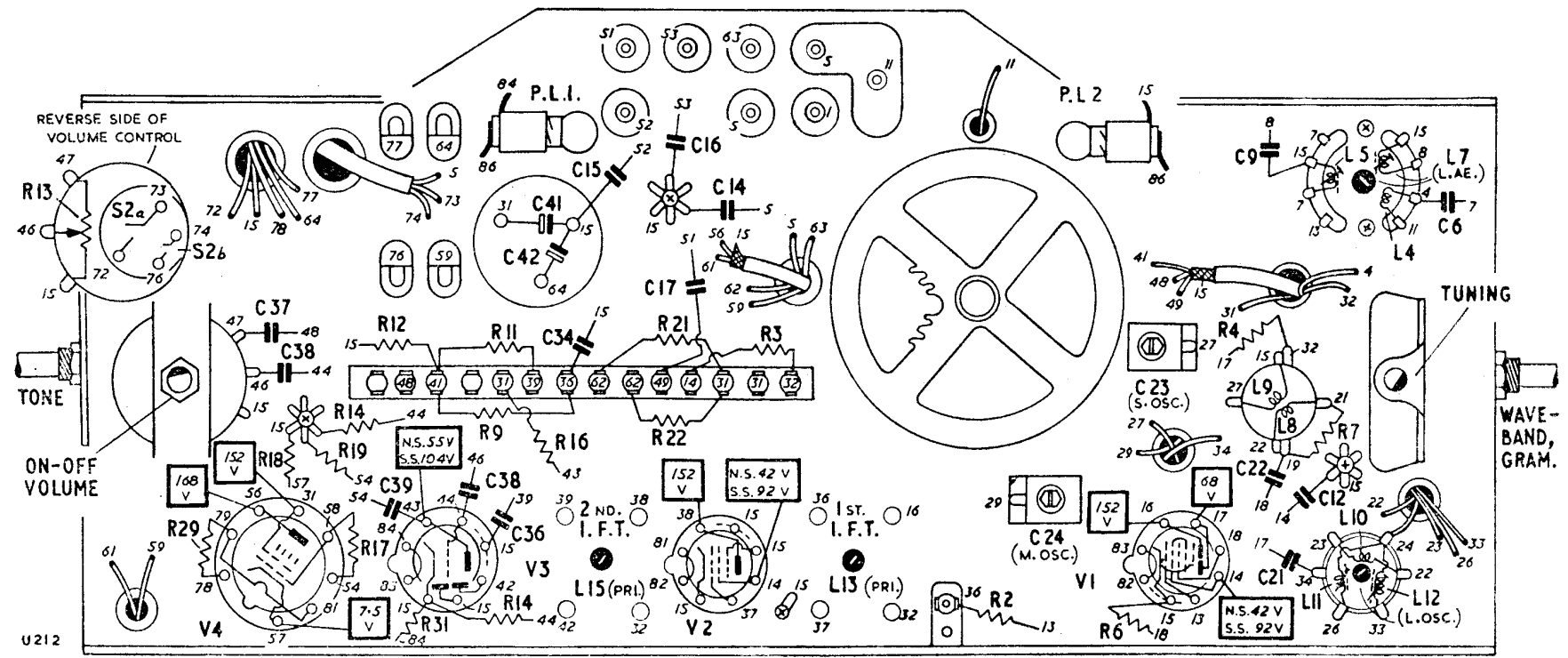
PART NO.	CIRCUIT NO.	VALUE	TOLERANCE AND REMARKS	PART NO.	CIRCUIT NO.	VALUE	TOLERANCE AND REMARKS
54078	C1	470 pF	20%, cer., 500V d.c.	24869	R8	680 Ω	10%, 0.6W
28299	C2	33 pF	2%, p.s.m., 350V d.c.	27461	R9	1 MΩ	20%, 0.6W
54078	C3	470 pF	20%, cer., 500V d.c.	25797	R11	180 KΩ	10%, 0.6W
52143	C6	2.7 pF	20%, cer., 500V d.c.	27365	R12	330 KΩ	20%, 0.6W
56322	C7	5-35 pF	Trimmer, S ae.	52851	R13	1 MΩ	Volume Control, log.
56322	C8	5-35 pF	Trimmer, M ae.	27653	R14	10 MΩ	20%, 0.6W
23606	C9	68 pF	10%, p.s.m., 350V d.c.	25805	R16	58 KΩ	10%, 0.6W
59075	C11	528 pF	Ganged capacitor, ae. section (with C31)	27205	R17	47 Ω	20%, 0.6W
41403	C12	0.05 μF	20%, tub., 350V d.c.	24653	R18	180 Ω	10%, 0.75W
54083	C13	470 pF	20%, cer., 500V d.c.	27397	R19	470 KΩ	20%, 0.6W
51766	C14	0.01 μF	20%, tub., 275V a.c.	25165	R21	3.9 KΩ	10%, 0.75W
41418	C15	0.005 μF	25%, tub., 1000V d.c.	25165	R22	3.9 KΩ	10%, 0.75W
41419	C16	0.01 μF	25%, tub., 1000V d.c.	52803	R23	20 KΩ	Tone control, log.
41409	C17	0.005 μF	25%, tub., 500V d.c.	25829	R24	220 KΩ	10%, 0.6W
52631	C18	150 pF	5%, p.s.m., 350V d.c.	59452	R25	125 Ω	5%, w.w.
52631	C19	150 pF	5%, p.s.m., 350V d.c.	59451	R26	125 Ω	5%, w.w.
54070	C21	100 pF	20%, cer., 500V d.c.	26652	R27	950 Ω	5%, w.w.
54070	C22	100 pF	20%, cer., 500V d.c.	50611	R28	47 Ω	20%, 1.5W
56322	C23	5-35 pF	Trimmer, S osc.	50611	R29	—	-ve, S.T.C. type CZ3
56322	C24	5-35 pF	Trimmer, M osc.	50611	R31	—	-ve, S.T.C. type CZ3
56322	C26	5-35 pF	Trimmer, L osc.				
23622	C27	150 pF	10%, p.s.m., 350V d.c.				
28311	C28	390 pF	1%, p.s.m., 350V d.c.				
28270	C29	560 pF	1%, p.s.m., 350V d.c.				
59075	C31	528 pF	Ganged capacitor, osc. section (with C11)				
52631	C32	150 pF	5%, p.s.m., 350V d.c.	55856	L1	17 Ω	I.f. rejector
52631	C33	150 pF	5%, p.s.m., 350V d.c.	59103	{ L2	—	Coupling
49454	C34	0.04 μF	25%, m.tub., 150V d.c.	59105	{ L3	—	Tuned
54070	C36	100 pF	20%, cer., 500V d.c.	59105	{ L4	39 Ω	Coupling
41409	C37	0.005 μF	25%, tub., 500V d.c.	59104	{ L5	7 Ω	M tuned
49454	C38	0.04 μF	25%, m.tub., 150V d.c.	59104	{ L7	29 Ω	L tuned
50962	C39	0.005 μF	25%, s.tub., 500V d.c.	59106	{ L8	—	Coupling
56152	{ C41	50 μF	+50% —20%, elec., 275V d.c.	59106	{ L9	—	Tuned
41424	{ C42	50 μF		59106	{ L10	—	Coupling
41424	C48	0.05 μF	20%, tub., 750V d.c.	59106	{ L11	4.5 Ω	M tuned
41424	C49	0.05 μF	20%, tub., 750V d.c.	59106	{ L12	10 Ω	L tuned
27461	R1	1 MΩ	20%, 0.6W	55879	{ L13	6.2 Ω	Pri.
27397	R2	470 KΩ	20%, 0.6W	55879	{ L14	6.2 Ω	Sec.
25453	R3	22 KΩ	10%, 0.75W	55879	{ L15	6.2 Ω	Pri.
25445	R4	22 KΩ	10%, 0.6W	55879	{ L16	6.2 Ω	Sec.
25477	R6	27 KΩ	10%, 0.6W	54223	{ L17	7 Ω	Mains filter
24549	R7	100 Ω	10%, 0.6W	54223	{ L18	7 Ω	
				59408	TI	{ 405+25 Ω	Pri.
						—	Sec.

PARTS LIST (Mechanical Components)

PART NO.	DESCRIPTION	REMARKS	PART NO.	DESCRIPTION	REMARKS
61389	Anchor (sleeve)	for mains lead	56453	Lampholder	for P.L. 2
65439	Back, assembly	for cabinet	59696	Lampholder, insulated	for P.L. 1
56041	Badge, Murphy		64324	Loudspeaker	8 in. dia.
59068	Bracket, mounting	for ganged capacitor	64596	Panel with sockets	aerial/earth, etc.
64030	Cabinet		65157	Panel and clips	for fuses
46903	Can	for L10/L11/L12	59675	Panel and tags	for mains adjustment
48466	Can (2)	for i.f. transformers	59051	Plate, anchoring	for mains lead
34184	Clamp	for C41/C42	37975	Plug (black)	for earth
62416	Clip, nut (2)	for cabinet back fixing	37974	Plug (red)	for aerial
52292	Clip, retaining	for L10/L11/L12	45974	Plug (2)	for loudspeaker
37973	Clip, spring (3)	for leads	64491	Pointer and carrier	
59066	Collar	for anchoring tuning spindle	59078	Rail	for pointer
936	Cord, 42 in.	for tuning drive	64340	Rail, ornamental	for cabinet
46916	Core, iron dust (2)	for L5 and L7	55232	Rectifier, metal (M.R.1)	Westinghouse 14B986
46913	Core, iron dust (2)	for L11 and L12	59196	Reflector	for tuning scale
46911	Core, iron dust (4)	for i.f. transformers	55779	Retainer (4)	for i.f.t. cores
59074	Drum	for ganged capacitor	64033	Scale, tuning	glass
15633	Eyelet (4)	inside V1 and V3 mounting grommets	10421	Screw, grub 4 BA	for collar on tuning spindle
1827/4	Fabric (Tygan)	for cabinet	10412	Screw, grub (4)	for tuning knobs
63170	Feet, felt (4)	for cabinet	14768	Spacer, mounting (7)	for chassis and C11/C31
64514	Foil, adhesive	plate aerial	64365	Spindle, tuning	
33202	Fuse F1	100mA plain	19448	Spring, tension	for drive cord
52122	Fuse F2	250mA mag. nickel	57315	Strip, clamping (3)	for L1, L2/L3, and L8/L9
42844	Grommet (4)	for V1 and V3 mounting	59107	Switch	Waveband
56122	Grommet, mounting (7)	for chassis and C11/C31	40134	Tag (3)	for mains adjustment panel
60060	Knob (2)	for volume and tuning controls	41035	Terminal, spade	for mains adjustment
64368	Knob (2)	for waveband and tone controls	51451	Valve holder B8A (3)	for V1, V2, and V3
16885	Lamp (2)	6.3V, 0.11A m.e.s.	5687	Valve holder, I.O.	for V4
			58554	Washer (14)	for chassis and ganged capacitor mounting grommets
			58555	Washer, felt (2)	for volume and tuning knobs
			58556	Washer, felt (2)	for waveband and tone knobs
			491313	Washer	for tuning spindle



The layout of the front and rear of the chassis



Make sure that the flexible leads and screen braiding from the cabinet socket panel to chassis are firmly attached to the tag on the chassis. These leads should also be taped together close to the tag panel. This is to prevent any of these leads from becoming detached and touching the chassis, thus making the socket panel "live".

CIRCUIT ALIGNMENT

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

Trimming tool. A non-metallic tool must be used for adjusting the coil cores.

The r.f. coil cores. More than one peak is possible with the r.f. coil cores. In case of difficulty, unscrew the core almost fully and then trim to the first major peak.

The pointer setting. Before aligning the r.f. circuits, make sure that the right-hand edge of the pointer carrier registers with 0.6 cm. on the guide rail when the ganged capacitor plates are just fully meshed (not necessarily against the stop). After the chassis is fitted into the cabinet, the pointer must

be set so that it registers with the datum lines at the right-hand end of the tuning scale when the ganged capacitor plates are just fully meshed. The figures quoted in the table refer to the setting of the right-hand edge of the pointer carrier.

Receiver oscillator frequency. On all wave bands, this is higher than the signal frequency.

The scale light reflector. This must be in position for r.f. alignment.

Replacement s.w. coils. The inductance of replacement coils must be adjusted after fitting. Referring to the circuit alignment table, commence at the lower frequency end of the S band and adjust the spacing of the end turns (osc. first). Then adjust the trimmers at the high frequency end of the band. Repeat the adjustments until there is no further improvement and finally seal the windings with wax.

CIRCUIT	NOTES	SIG. GEN. FREQUENCY	SIG. GEN. TERMINATION	CONNECT SIG. GEN. TO	POINTER SETTING	ADJUSTMENTS
2nd i.f.t.	Unscrew sec. core (top of can) before starting adjustments	470 Kc/s	Via 0.01 μ F capacitor	V2 grid 1 (pin 6)	0.6 cm.	L15 (pri.) at chassis front L16 (sec.) at chassis rear DO NOT RE-ADJUST PRI.
1st i.f.t.	As above. Switch to M band	470 Kc/s	As above	V1 signal grid (pin 6)	0.6 cm.	L13 (pri.) at chassis front L14 (sec.) at chassis rear DO NOT RE-ADJUST PRI.
I.f. rejector	Switch to M band. Adjust for minimum output	470 Kc/s	Dummy aerial	Ae. socket	0.6 cm.	L1 at chassis rear
M	Repeat these adjustments until there is no further improvement	600 Kc/s (500 m.)	As above	As above	2.25 cm.	L11 (osc.) at chassis rear L5 (ae.) at chassis rear
		1363 Kc/s (220 m.)	As above	As above	11.45 cm.	C24 (osc.) at chassis front C8 (ae.) at chassis rear
L	As above	176.5 Kc/s (1700 m.)	As above	As above	4.1 cm.	L12 (osc.) at chassis front L7 (ae.) at chassis front
		300 Kc/s (1000 m.)	As above	As above	12.75 cm.	C26 (osc.) at chassis rear
S	Set C23 to lower capacitance peak. Rock tuning control for maximum sensitivity while adjusting C7	17.8 Mc/s (16.86 m.)	As above	As above	13.9 cm.	C23 (osc.) at chassis front C7 (ae.) at chassis rear
		6.7 Mc/s (44.8 m.)	As above	As above	2.35 — 2.65 cm.	No adjustments