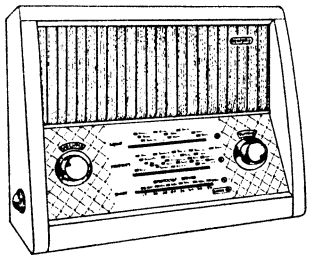
MURPHY SERVICE INSTRUCTIONS



SPECIFICATION

MAINS SUPPLY:		200–250 volts a.c., 50–100 c/s
CONSUMPTION:		42 watts approximately
WAVE BANDS:	Short:	16·8–50·4 metres
	Medium:	187–540 metres
	Long:	1000–2000 metres
INTERMEDIATE FREQUENCY:		470 Kc/s
VALVES:		6C9, 6F15 or 6F16, 6LD20, 6P25
SCALE LAMPS:		Two 6·5 volts 0·3 amp. m.e.s.
LOUDSPEAKER:	Type:	8 in. dia., permanent magnet
	Impedance:	3 ohms
CABINET DIMENSIONS:		19 in. wide, 16 in. high, 8 in. deep
WEIGHT:		18 lb.

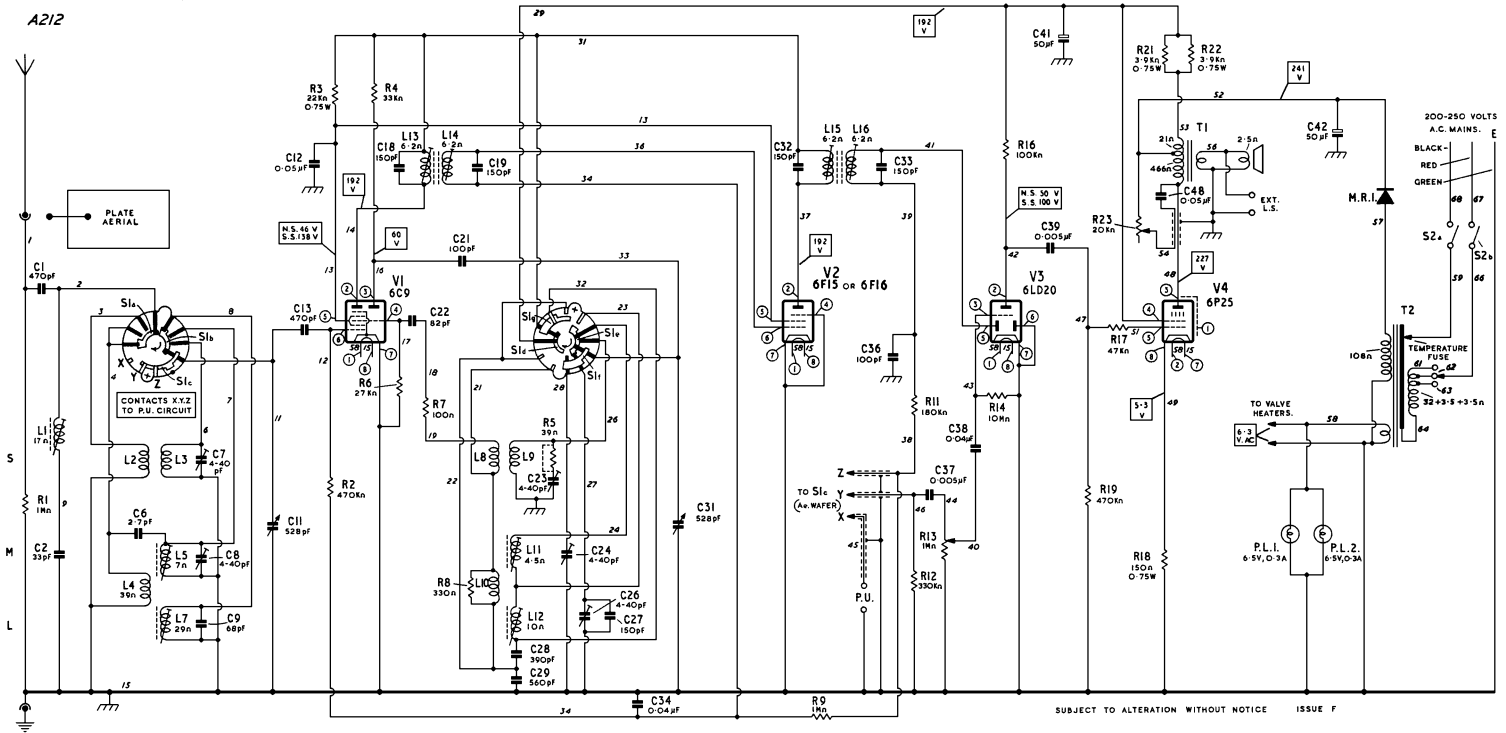
Issued by

MURPHY RADIO LTD

WELWYN GARDEN CITY · HERTS

PHONE: WELWYN GARDEN 3434

May 1954



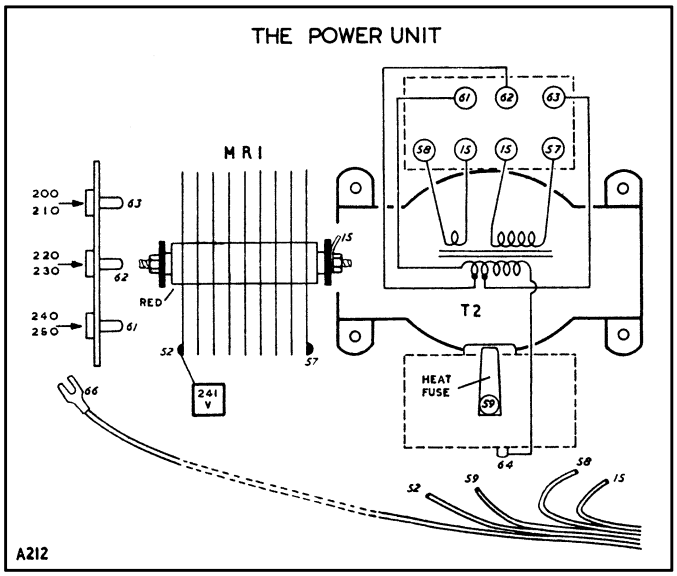
The wave band switch (S1a-S1g) is shown in the long wave position, and is drawn as seen from the rear; rotate clockwise for medium, short and gramophone. The black contacts and inner rotors are on the hidden sides of the wafers and the lugs marked with a cross are the nearer to the chassis. Blank positions 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 with some frequency changer valves, R5 must be brought into circuit by cutting the wire link across it.

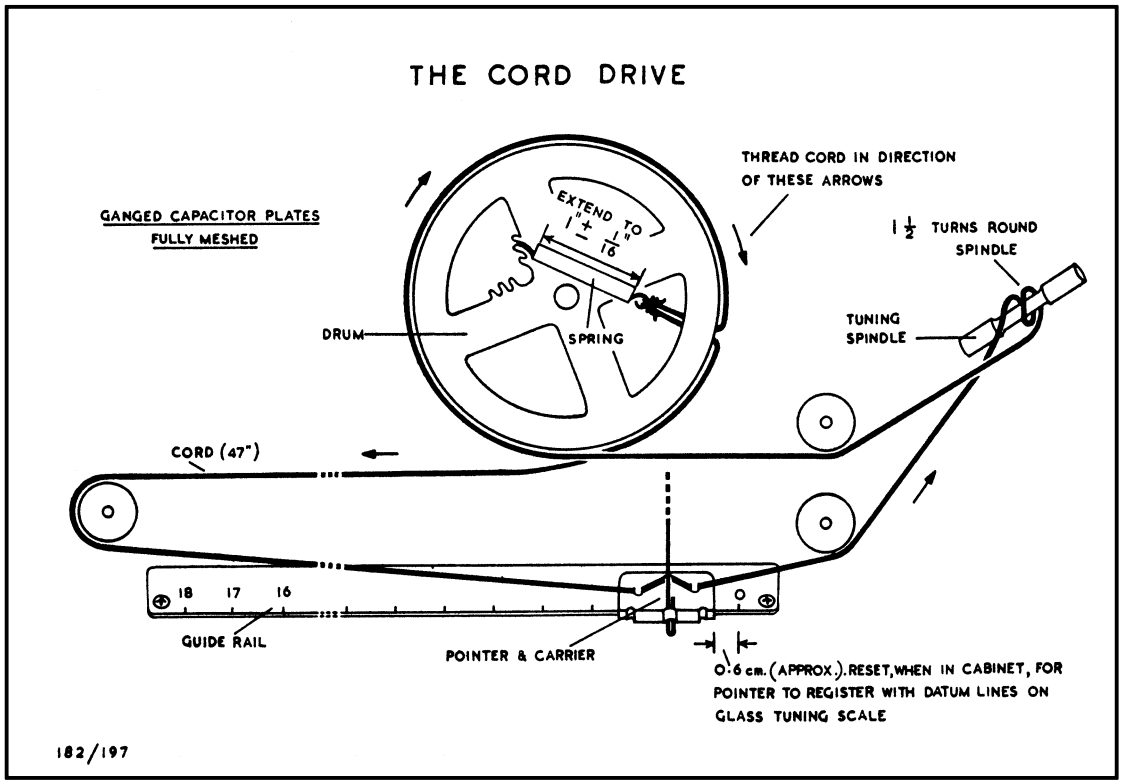


PARTS LIST ABREVIATIONS

cer.	—	ceramic
p.s.m.	—	protected silvered mica
tub.	—	paper tubular
m.tub.	—	metallized paper tubular
s.tub.	—	sealed paper tubular (metal cased)
elec.	—	electrolytic
V d.c.	—	d.c. voltage rating
W	—	wattage rating
log.	—	logarithmic law

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.



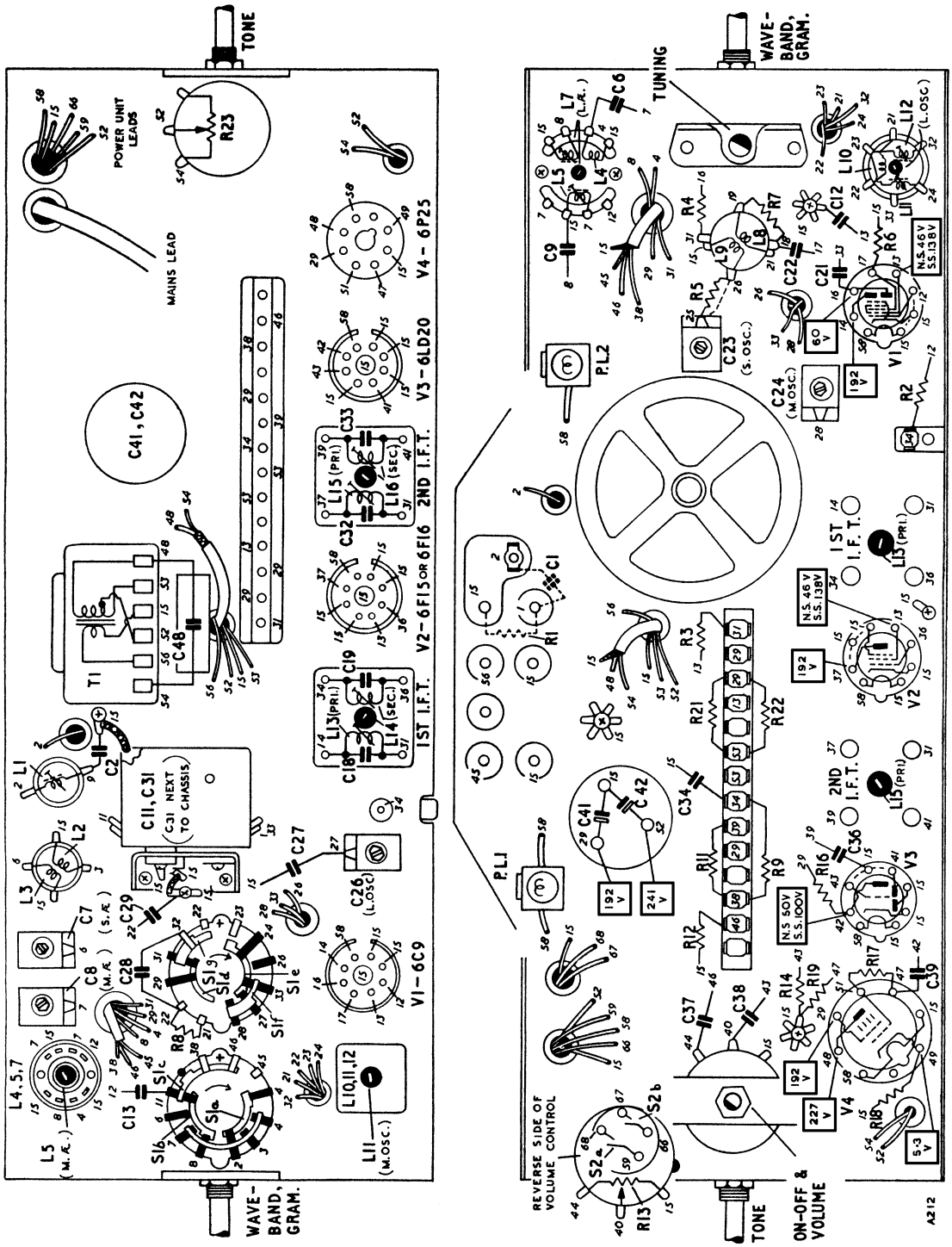
PART NO.	CIRCUIT NO.	VALUE	TOLERANCE AND REMARKS
54083	C1	470 pF	20%, cer., 500V d.c.
28299	C2	33 pF	2%, p.s.m., 350V d.c.
52143	C6	2·7 pF	20%, cer., 500V d.c.
56322	C7	4–40 pF	Trimmer, S ae.
56322	C8	4–40 pF	Trimmer, M ae.
23606	C9	68 pF	10%, p.s.m., 350V d.c.
59075	C11	528 pF (swing)	Ganged capacitor, ae. section, with C31
41403	C12	0·05 µF	20%, tub., 350V d.c.
54083	C13	470 pF	20%, cer., 500V d.c.
52631	C18	150 pF	5%, p.s.m., 350V d.c.
52631	C19	150 pF	5%, p.s.m., 350V d.c.
54070	C21	100 pF	20%, cer., 500V d.c.
28179	C22	82 pF	5%, p.s.m., 350V d.c.
56322	C23	4–40 pF	Trimmer, S osc.
56322	C24	4–40 pF	Trimmer, M osc.
56322	C26	4–40 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 (swing)	Ganged capacitor, osc. section, with C11
52631	C32	150 pF	5%, p.s.m., 350V d.c.
52631	C33	150 pF	5%, p.s.m., 350V d.c.
49454	C34	0·04 µF	25%, m.tub., 150V d.c.
54070	C36	100 pF	20%, cer., 500V d.c.
41409	C37	0·005 µF	25%, tub., 500V d.c.
49454	C38	0·04 µF	25%, m.tub., 150V d.c.
50962	C39	0·005 µF	25%, s.tub., 500V d.c.
56152	C41	50 µF	+50% —20%, elec., 275V d.c.
	C42	50 µF	
41424	C48	0·05 µF	20%, tub., 750V d.c.
27461	R1	1 MΩ	20%, 0·6W
27397	R2	470 KΩ	20%, 0·6W
25453	R3	22 KΩ	10%, 0·75W
25509	R4	33 KΩ	10%, 0·6W
24389	R5	39 Ω	10%, 0·6W
25477	R6	27 KΩ	10%, 0·6W

PART NO.	CIRCUIT NO.	VALUE	TOLERANCE AND REMARKS
24549	R7	100 Ω	10%, 0·6W
24741	R8	330 Ω	10%, 0·6W
27461	R9	1 MΩ	20%, 0·6W
25797	R11	180 KΩ	10%, 0·6W
27365	R12	330 KΩ	20%, 0·6W
52851	R13	1 MΩ	Volume control, log.
27653	R14	10 MΩ	20%, 0·6W
27269	R16	100 KΩ	20%, 0·6W
27205	R17	47 KΩ	20%, 0·6W
24621	R18	150 Ω	10%, 0·75W
27397	R19	470 KΩ	20%, 0·6W
25165	R21	3·9 KΩ	10%, 0·75W
25165	R22	3·9 KΩ	10%, 0·75W
52803	R23	20 KΩ	Tone control, log.

PART NO.	CIRCUIT NO.	RESISTANCE (D.C.)	REMARKS
55856	L1	17 Ω	I.f. rejector
59103	L2	—	S ae. coupling
	L3	—	S ae. tuned
59105	L4	39 Ω	L & M ae. coupling
	L5	7 Ω	M ae. tuned
	L7	29 Ω	L ae. tuned
59104	L8	—	S osc. coupling
	L9	—	S osc. tuned
59106	L10	—	L & M osc. coupling
	L11	4·5 Ω	M osc. tuned
	L12	10 Ω	L osc. tuned
55879	L13	6·2 Ω	Pri. } 1st i.f.t.
	L14	6·2 Ω	Sec. }
55879	L15	6·2 Ω	Pri. } 2nd i.f.t.
	L16	6·2 Ω	Sec. }
59102	T1	487 Ω (total)	Pri. } output transformer
		—	Sec. }
64304	T2	39 Ω (total)	Pri. } mains transformer
		108 Ω	H.t. sec. }
		—	Htr. sec. }

PART NO.	DESCRIPTION	REMARKS
61389	Anchor (sleeve)	for mains lead
64148	Back, complete	for cabinet
62076	Badge, Murphy	for front of cabinet
64030	Cabinet	
48466	Can (2)	for i.f. transformers
46903	Can	for L10/L11/L12
62416	Clip, nut (2)	for cabinet back fixing
52292	Clip, retaining	for L10/L11/L12
37973	Clip, spring (3)	for leads
59066	Collar	for anchoring tuning spindle
3962/1	Cord 47 in.	for tuning drive
46911	Core, iron dust (4)	for i.f. transformers
46916	Core, iron dust (2)	for L5 and L7
46913	Core, iron dust (2)	for L11 and L12
59079	Drum, tuning	
15633	Eyelet (4)	inside V1 and V3 mounting grommets
64514	Foil, adhesive	plate aerial
56622	Grommet (7)	for chassis and ganged capacitor mounting
42844	Grommet (4)	for V1 and V3 mounting
60060	Knob (2)	volume and tuning
63468	Knob (2)	wave band, tone
16882	Lamp (2)	6·5V, 0·3A, m.e.s.
56453	Lampholder (2)	
64324	Loudspeaker	8 in. dia.
64596	Panel with sockets	for aerial/earth, etc.

PART NO.	DESCRIPTION	REMARKS
59675	Panel with tags	for mains adjustment
59051	Plate, anchor	for mains lead
37975	Plug (black)	for earth
37974	Plug (red)	for aerial
45974	Plug (2)	for loudspeaker
64371	Pointer and carrier	
64340	Rail, ornamental	for cabinet front
59078	Rail	for pointer
55232	Rectifier, metal (M.R.1)	Westinghouse 14B986
59195	Reflector	for scale
55779	Retainer (4)	for i.f.t. cores
64033	Scale, tuning	glass
10421	Screw, grub 4BA	for collar on tuning spindle
10412	Screw, grub (4)	for tuning knobs
14768	Spacer (7)	inside chassis and ganged capacitor mounting grommets
64365	Spindle, tuning	
19448	Spring, tension	for drive cord
57315	Strip, clamping (3)	for L1, L2/L3, and L8/L9
59107	Switch, waveband	
40134	Tag (3)	for mains adjustment panel
40135	Terminal, spade	for mains voltage adjustment
51451	Valve holder, B8A (3)	for V1, V2, and V3
5687	Valve holder, I.O.	for V4
58554	Washer (14)	for chassis and ganged capacitor mounting grommets
491313	Washer	for tuning spindle
58555	Washer, felt (2)	for volume and tuning knobs
58556	Washer, felt (2)	for wave band and tone knobs



The layout of the front and rear of the chassis

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 500 mW., or 1V across the loudspeaker speech coil.

Trimming tool. A non-metallic tool must be used to adjust 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 fully meshed. The figures 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 during 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 these 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 (chassis rear) before starting adjustments	470 Kc/s	Via 0·01 μF capacitor	V2 signal grid (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	C11 (t.p.11)	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	Via 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