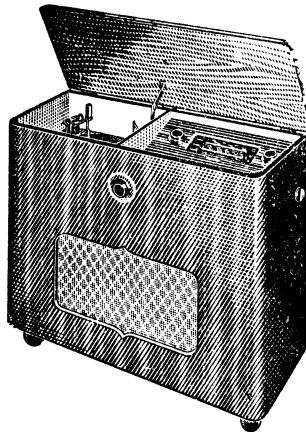


AI82R

AI82R

MURPHY SERVICE INSTRUCTIONS



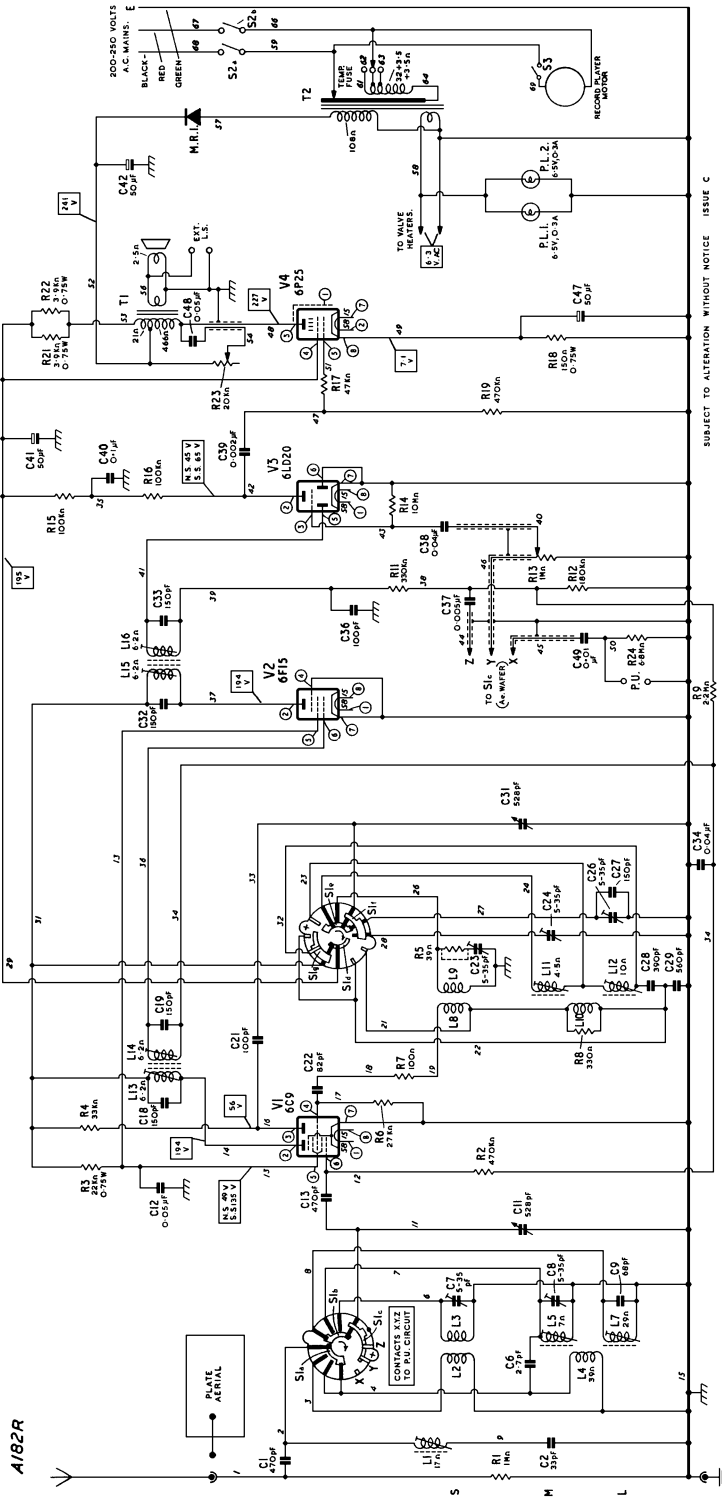
SPECIFICATION

MAINS SUPPLY :	200-250 volts a.c., 50 c/s
CONSUMPTION :	Radio: 42 watts approximately Gramophone: 70 watts approximately
WAVE BANDS :	Short: 16.8-50.4 metres Medium: 187-540 metres Long: 1000-2000 metres
INTERMEDIATE FREQUENCY :	470 Kc/s
VALVES :	Mazda: 6C9, 6F15, 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	35 in. wide, 32 in. high, 14½ in. deep
WEIGHT :	70 lb. approximately
RELEASED :	November 1952
PRICE :	£54 6s. 11d. plus P.T.

Issued by

**MURPHY RADIO LTD
WELWYN GARDEN CITY · HERTS**

PHONE: WELWYN GARDEN 3434



SUBJECT TO ALTERATION WITHOUT NOTICE ISSUE C

A MUTING SWITCH SHORT-CIRCUITS THE PICK-UP LEADS WHEN THE ARM IS ON OR OVER THE REST.

The wave band switch (S1a-Sig) 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.

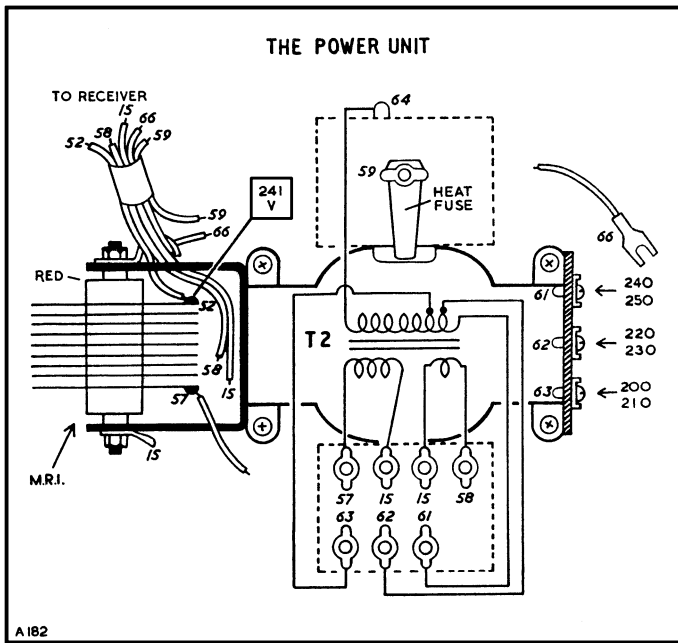
Circuit voltages are shown within rectangles and were measured with a 20KΩ/V meter while the receiver was switched to the M band. Two readings are quoted for those points where the voltage differs appreciably from No-Signal (N.S.) to Strong Signals (S.S.) conditions.

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.

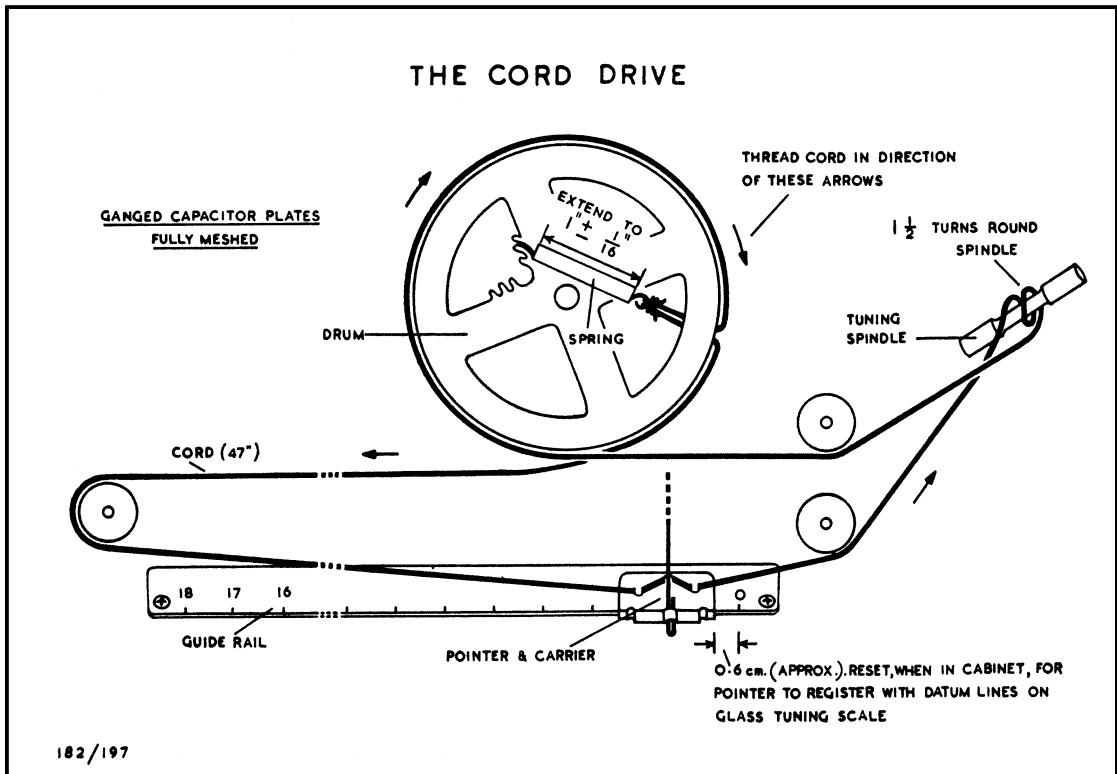
Modifications. In early sets R5 was not fitted and C22 was 100pF.



PARTS LIST ABBREVIATIONS

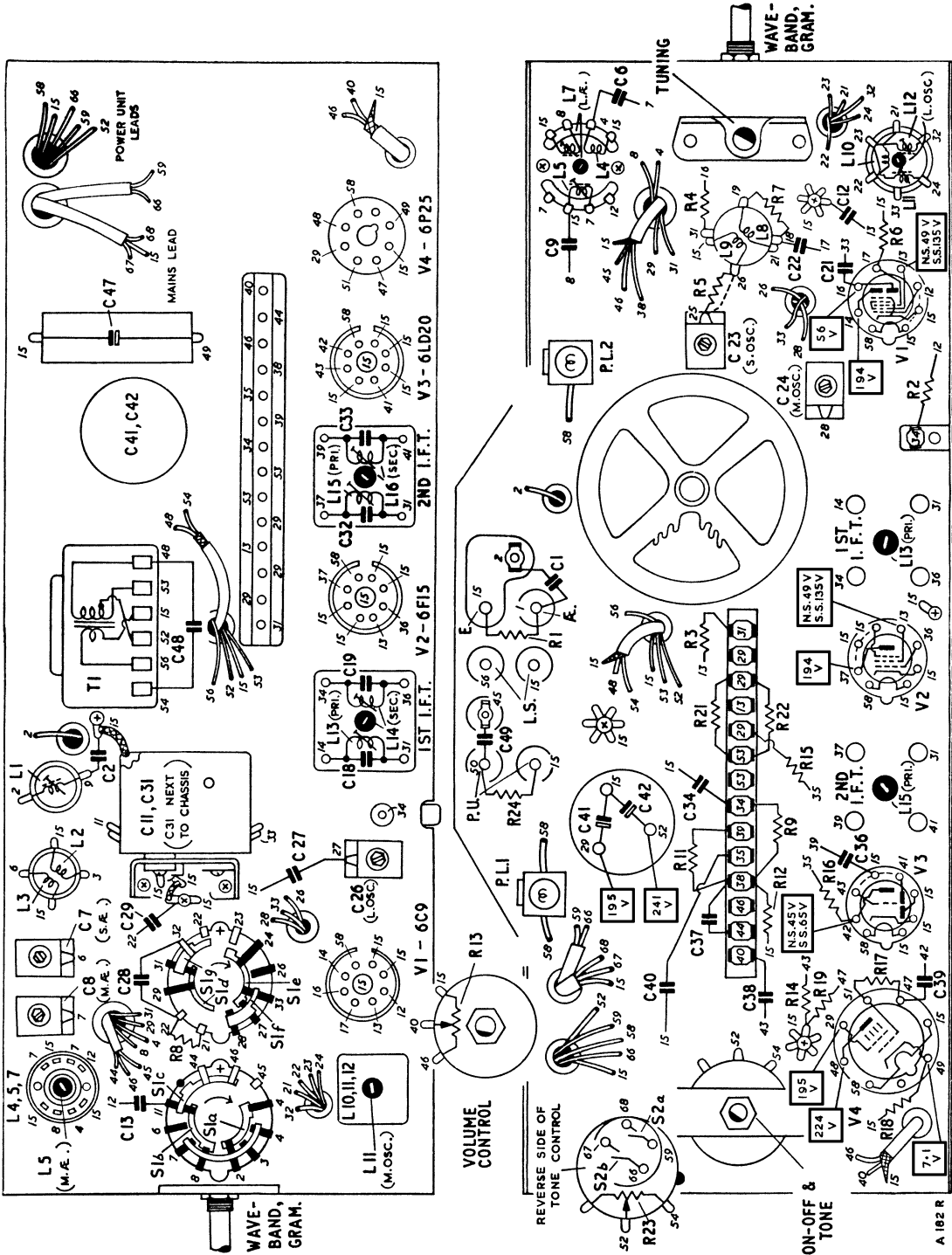
- cer. — ceramic
- p.s.m. — protected silvered mica
- tub. — paper tubular
- m.tub. — metallized paper tubular
- s.tub. — sealed paper tubular
(metal cased)
- elec. — electrolytic
- V d.c. — d.c. voltage rating
- W — wattage rating
- log. — logarithmic law

Gramophone Circuit Modification. To suit the characteristics of earlier p.u. heads, R27 was fitted in the "78" adaptor and C49 was 0.001μF. These early heads had plain moulded cases with no engraving; the "78" head could be identified by the metal weight covering its front and top. Do not interchange new and old heads, adaptors, and receivers. Some very early adaptors had lead weights inside them, but this was discontinued and the wire link to the p.u. arm counter-balancing spring was lengthened.



PART NO.	CIRCUIT NO.	VALUE	TOLERANCE AND REMARKS	PART NO.	CIRCUIT NO.	VALUE	TOLERANCE AND REMARKS
54083	C1	470 pF	20%, cer., 500V d.c.	24549	R7	100 Ω	10%, 0-6W
28299	C2	33 pF	2%, p.s.m., 350V d.c.	24741	R8	330 Ω	10%, 0-6W
52143	C6	2-7 pF	20%, cer., 500V d.c.	27525	R9	2-2 MΩ	20%, 0-6W
37480	C7	5-35 pF	Trimmer, S ae.	27365	R11	330 KΩ	20%, 0-6W
37480	C8	5-35 pF	Trimmer, M ae.	25797	R12	180 KΩ	10%, 0-6W
23606	C9	68 pF	10%, p.s.m., 350V d.c.	52806	R13	1 MΩ	Volume control, log.
59075	C11	528 pF (swing)	Ganged capacitor, ae. section, with C31	27653	R14	10 MΩ	20%, 0-6W
41403	C12	0-05 μF	20%, tub., 350V d.c.	27269	R15	100 KΩ	20%, 0-6W
54083	C13	470 pF	20%, cer., 500V d.c.	27269	R16	100 KΩ	20%, 0-6W
52631	C18	150 pF	5%, p.s.m., 350V d.c.	27205	R17	47 KΩ	20%, 0-6W
52631	C19	150 pF	5%, p.s.m., 350V d.c.	24621	R18	150 Ω	10%, 0-75W
54070	C21	100 pF	20%, cer., 500V d.c.	27397	R19	470 KΩ	20%, 0-6 W
28179	C22	82 pF	5%, p.s.m., 350V d.c.	25165	R21	3-9 KΩ	10%, 0-75W
37480	C23	5-35 pF	Trimmer, S osc.	25165	R22	3-9 KΩ	10%, 0-75W
37480	C24	5-35 pF	Trimmer, M osc.	52807	R23	20 KΩ	Tone control, log.
37480	C26	5-35 pF	Trimmer, L osc.	27621	R24	6-8 MΩ	20%, 0-6W
23622	C27	150 pF	10%, p.s.m., 350V d.c.	27333	R26	220 KΩ	20%, 0-6W
28311	C28	390 pF	1%, p.s.m., 350V d.c.	28583	R27	270 KΩ	20%, 0-1W
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.	55856	L1	17 Ω	I.f. rejector
52631	C33	150 pF	5%, p.s.m., 350V d.c.	59103	{L2 L3	—	S ae. coupling S ae. tuned
49454	C34	0-04 μF	25%, m.tub., 150V d.c.	59105	{L4 L5	39 Ω 7 Ω	L & M ae. coupling M ae. tuned
54070	C36	100 pF	20%, cer., 500V d.c.	59105	{L6 L7	29 Ω	L ae. tuned
41409	C37	0-005 μF	25%, tub., 500V d.c.	59104	{L8 L9	—	S osc. coupling S osc. tuned
49454	C38	0-04 μF	25%, m.tub., 150V d.c.	59106	{L10 L11	— 4-5 Ω	L & M osc. coupling M osc. tuned
53060	C39	0-002 μF	25%, s.tub., 500V d.c.	59106	{L12 L13	10 Ω 6-2 Ω	L osc. tuned
41404	C40	0-1 μF	20%, tub., 350V d.c.	55895	{L14 L15	6-2 Ω 6-2 Ω	Pri. Sec. } 1st i.f.t.
56152	{C41 C42	{50 μF 50 μF	{+50% —20%, elec., 275V d.c.	55895	{L16 L16	{— 6-2 Ω	Pri. Sec. } 2nd i.f.t.
31314	C47	50 μF	+50% —20%, elec., 12V d.c.	59102	T1	{487 Ω (total)	Sec. } output transformer
41424	C48	0-05 μF	20%, tub., 750V d.c.	59109	T2	{39 Ω (total) 108 Ω —	Pri. Sec. H.tr. sec. } mains transformer
41410	C49	{0-01 μF 0-001 μF	25%, tub., 500V d.c.: see Gram Circuit Mods.				
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.	DESCRIPTION	REMARKS	PART NO.	DESCRIPTION	REMARKS
61389	Anchor (sleeve)	for mains lead	59062	Pad, moulded rubber (2)	for lower corners of tuning scale
60046	Back, large	for cabinet	63488	Panel and sockets	for Ae. and E
60017	Back, small	for cabinet	59675	Panel, with tags	for mains adjustment
62076	Badge, Murphy		56204	Pick-up head	Acos "33/45" GP19LP
60043	Bracket, storage	for alternative pick-up	56205	Pick-up head	Acos "7L" GP19
59986	Cabinet		57481	Pick-up adaptor	for "33/45" head
46903	Can	for L10/L11/L12	60032	Pick-up adaptor	for "78" head
59063	Clamp (2)	for scale corners	59051	Plate, anchoring	for mains lead
59424	Clamp (2)	for scale lower edge	37975	Plug, black (2)	for earth and pick-up
52292	Clip, retaining	for L10/L11/L12	45974	Plug, black (2)	for loudspeaker
14738	Collar (8)	used with damper (55521)	37974	Plug, red (2)	for aerial and pick-up
3962/1	Cord, 47 in.	for tuning drive	59069	Pointer and carrier	
55521	Damper (4)	for gram. unit mounting	59078	Rail	for pointer
60042	Disc, ornamental	for volume control	55226	Rectifier, metal (M.R.1)	Westinghouse 15B35
59079	Drum	for ganged capacitor	59195	Reflector	for tuning scale
15633	Eyelet (4)	inside V1 and V3 grommets	59058	Scale, tuning	glass
60008	Foil, adhesive	for plate aerial	10412	Screw, grub (4)	for knobs
60031	Gramophone unit	Garrard RC75A, less p.u. heads, adaptors, R26 and C51	14768	Spacer, mounting (7)	for chassis and C11/C31
42844	Grommet (4)	for V1 and V3 mounting	59070	Spindle, tuning	
42845	Grommet	for storage bracket (60043)	19448	Spring, tension	for tuning drive cord
56622	Grommet, mounting (7)	for chassis and C11/C31	61123	Stay	for lid
60060	Knob, large (3)		57315	Strip, clamping (3)	for L1, L2/L3, L8/L9
59337	Knob, small		59107	Switch	wave band
16882	Lamp (2)	6-5V, 0-3A, m.e.s.	40134	Tag (3)	for mains adjustment panel
56453	Lampholder (2)		59111	Tag, spring	contact for plate aerial
51642	Loudspeaker	8 in. diameter	40135	Terminal, spade	for mains adjustment
48506	Pad, rubber channel (2)	for edges of tuning scale	51451	Valve holder B8A (3)	for V1, V2, V3
			5687	Valve holder I.O.	for V4
			58555	Washer, felt (3)	for large knobs
			58556	Washer, felt	for small knob
			58554	Washer, mounting (14)	for chassis and C11/C31



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	Ac. socket	0.6 cm.	L1 at chassis rear
M	Repeat these adjustments until there is no further improvement	600 Kc/s (500 m.) 1363 Kc/s (220 m.)	As above As above	As above As above	2.25 cm. 11.45 cm.	L11 (osc.) at chassis rear L5 (ac.) at chassis rear C24 (osc.) at chassis front C8 (ac.) at chassis rear
L	As above	176.5 Kc/s (1700 m.) 300 Kc/s (1000 m.)	As above As above	As above As above	4.1 cm. 12.75 cm.	L12 (osc.) at chassis front L7 (ac.) at chassis front 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.) 6.7 Mc/s (44.8 m.)	As above As above	As above As above	13.9 cm. 2.35 – 2.65 cm.	C23 (osc.) at chassis front C7 (ac.) at chassis rear No adjustments