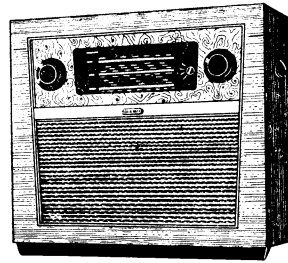
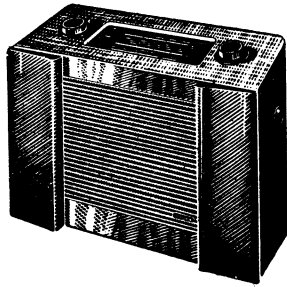


MURPHY SERVICE INSTRUCTIONS



SPECIFICATION

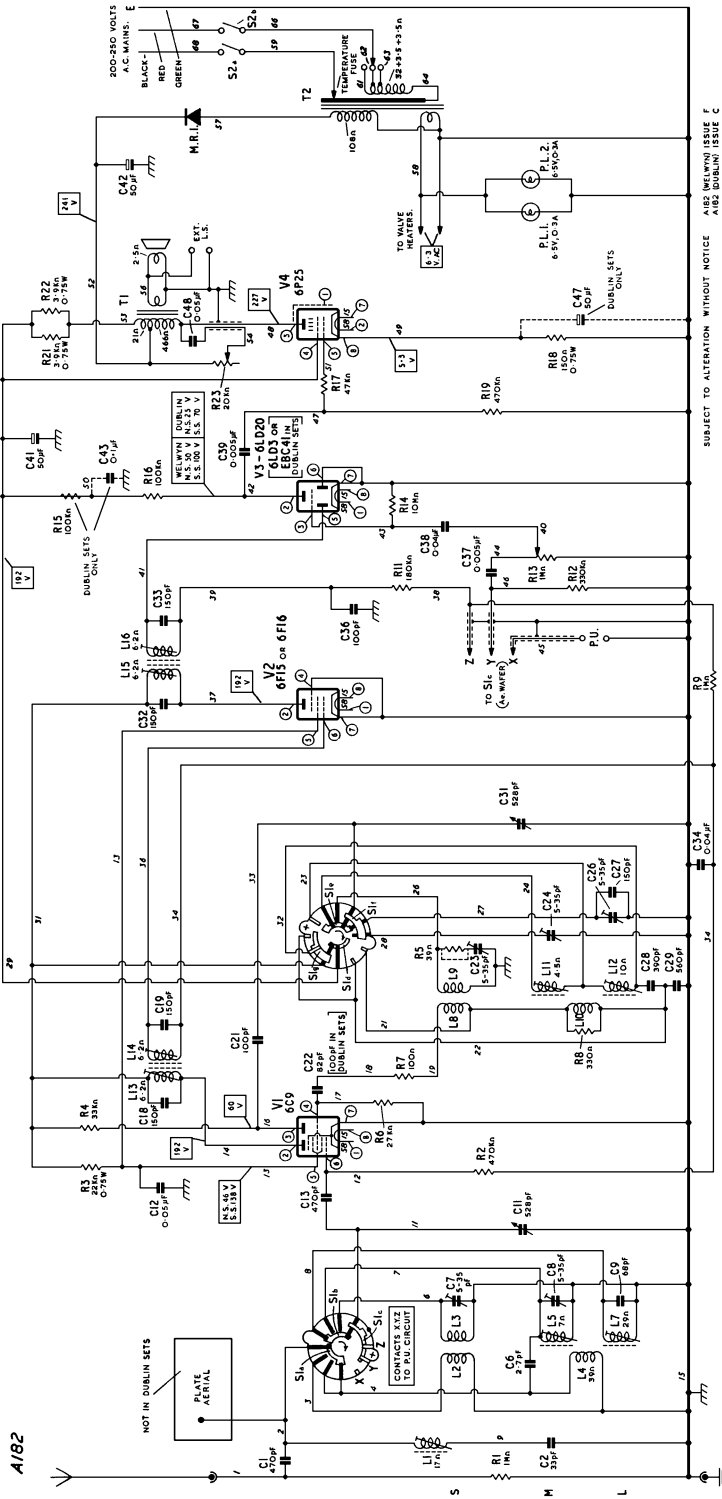
MAINS SUPPLY:	200-250 volts a.c., 50-100 c/s
CONSUMPTION:	42 watts approximately
WAVE BANDS:	Short: 16·8-50·4 metres Medium: 187-540 metres Long: 1000-2000 metres
INTERMEDIATE FREQUENCY:	Welwyn: 470 Kc/s Dublin: 465 Kc/s
VALVES:	Mazda: 6C9, 6F15 or 6F16, 6LD20 (6LD3 or Mullard EBC41 in Dublin sets), 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:	Welwyn: 20 in. wide, 14½ in. high, 7 in. deep Dublin: 19 in. wide, 17 in. high, 8½ in. deep
WEIGHT:	18 lb.

Issued by

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

PHONE: WELWYN GARDEN 3434

January 1954



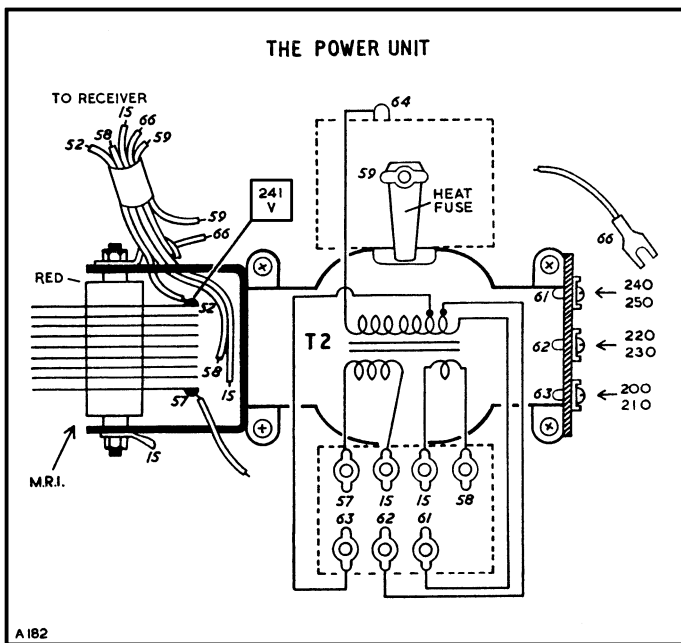
SUBJECT TO ALTERATION WITHOUT NOTICE
AUG. DUBLIN ISSUE 2

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 Signals (S.S.) conditions.

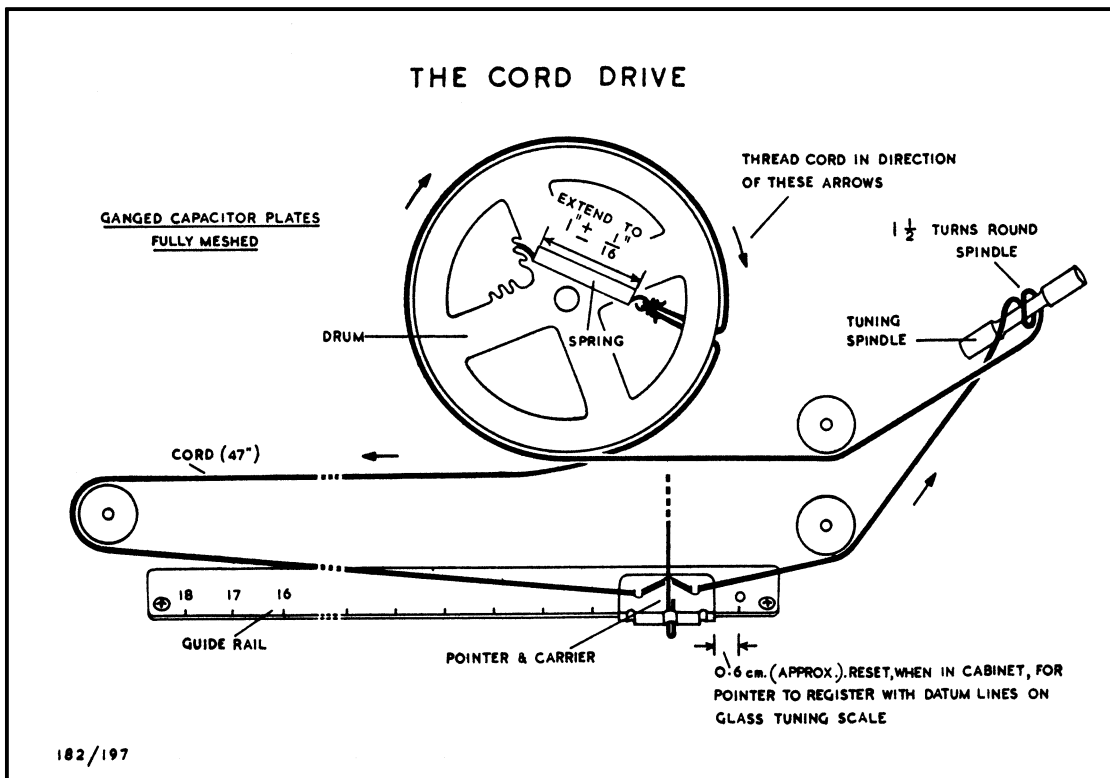
Where the resistance of a coil is less than one ohm, the value is omitted. Component terminals and connecting leads are identified by test point (t.p.) numbers which correspond with those appearing on the chassis drawings.

All valves are Mazda types, excepting the EBC41 (V3) which is a Mullard type. 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 Welwyn sets R5 was not fitted and C22 was 100pF.



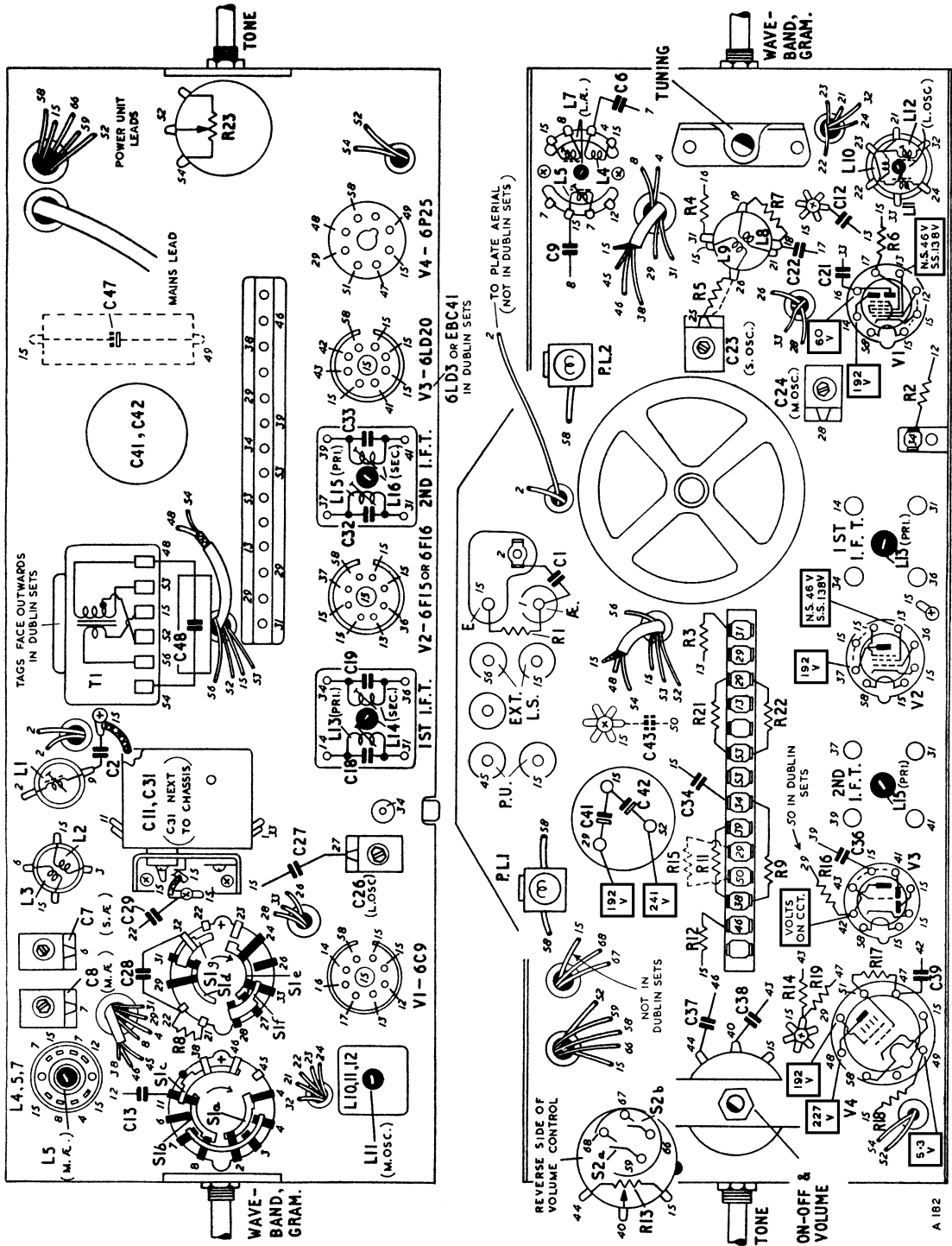
PARTS LIST ABBREVIATIONS

- 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



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.	25477	R6	27 KΩ	10%, 0-6W
28299	C2	33 pF	2%, p.s.m., 350V d.c.	24549	R7	100 Ω	10%, 0-6W
52143	C6	2.7 pF	20%, cer., 500V d.c.	24741	R8	330 Ω	10%, 0-6W
37480	C7	5-35 pF	Trimmer, S ae.	27461	R9	1 MΩ	20%, 0-6W
37480	C8	5-35 pF	Trimmer, M ae.	25797	R11	180 KΩ	10%, 0-6W
23606	C9	68 pF	10%, p.s.m., 350V d.c.	27365	R12	330 KΩ	20%, 0-6W
59075	C11	528 pF (swing)	Ganged capacitor, ae. section, with C31 (Welwyn sets)	52801	R13	1 MΩ	Volume control, log. (Welwyn sets)
59076	C11	528 pF (swing)	Ganged capacitor, ae. section, with C31 (Dublin sets)	52808	R13	1 MΩ	Volume control, log. (Dublin sets)
41403	C12	0.05 μF	20%, tub., 350V d.c.	27653	R14	10 MΩ	20%, 0-6W
54083	C13	470 pF	20%, cer., 500V d.c.	27269	R15	100 KΩ	20%, 0-6W (Dublin sets)
52631	C18	150 pF	5%, p.s.m., 350V d.c.	27269	R16	100 KΩ	20%, 0-6W
52631	C19	150 pF	5%, p.s.m., 350V d.c.	27205	R17	47 KΩ	20%, 0-6W
54070	C21	100 pF	20%, cer., 500V d.c.	24621	R18	150 Ω	10%, 0-75W
28179	C22	82 pF	5%, p.s.m., 350V d.c. (Welwyn sets)	27397	R19	470 KΩ	20%, 0-6 W
54070	C22	100 pF	20%, cer., 500V d.c. (Dublin sets)	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.	52803	R23	20 KΩ	Tone control, log.
37480	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 (swing)	Ganged capacitor, osc. section, with C11 (Welwyn sets)	55856	L1	17 Ω	I.f. rejector
59076	C31	528 pF (swing)	Ganged capacitor, osc. section, with C11 (Dublin sets)	59103	L2	—	S ae. coupling
52631	C32	150 pF	5%, p.s.m., 350V d.c.		L3	—	S ae. tuned
52631	C33	150 pF	5%, p.s.m., 350V d.c.	59105	L4	39 Ω	L & M ae. coupling } Welwyn sets
49454	C34	0.04 μF	25%, m.tub., 150V d.c.		L5	7 Ω	M ae. tuned
54070	C36	100 pF	20%, cer., 500V d.c.	59789	L7	29 Ω	L ae. tuned
41409	C37	0.005 μF	25%, tub., 500V d.c.		L4	41 Ω	M ae. coupling } Dublin sets
49454	C38	0.04 μF	25%, m.tub., 150V d.c.	59104	L5	2 Ω	M ae. tuned
50962	C39	0.005 μF	25%, s.tub., 500V d.c.		L7	35 Ω	L ae. tuned
56152	{C41	50 μF}	+50% —20%, elec., 275V d.c.	59106	L8	—	S osc. coupling
41404	{C42	50 μF}	+50% —20%, elec., 275V d.c.		L9	—	S osc. tuned
31314	C47	50 μF	20%, tub., 350V d.c. (Dublin sets)		L10	—	L & M osc. coupling
41424	C48	0.05 μF	+50% —20%, elec., 12V d.c. (Dublin sets)	59106	L11	4.5 Ω	M osc. tuned
27461	R1	1 MΩ	20%, tub., 750V d.c.	55895	L12	10 Ω	L osc. tuned
27397	R2	470 KΩ	20%, 0-6W		L13	6.2 Ω	Pri. } 1st i.f.t.
25453	R3	22 KΩ	20%, 0-6W	55895	L14	6.2 Ω	Sec. }
25509	R4	33 KΩ	10%, 0-6W	55895	L15	6.2 Ω	Pri. } 2nd i.f.t.
24389	R5	39 Ω	10%, 0-6W	59102	L16	6.2 Ω	Sec. }
				59102	T1	{487 Ω (total)	Pri. } output transformer
				59102		—	Sec. }
				59109	T2	{39 Ω (total)	Pri. } mains transformer
				59109		108 Ω	H.t. sec. } (Welwyn sets)
				59109		—	Htr. sec. }
				60397	T2	{39 Ω (total)	Pri. } mains transformer
				60397		108 Ω	H.t. sec. } (Dublin sets)
				60397		—	Htr. sec. }

PART NO.	DESCRIPTION	REMARKS	PART NO.	DESCRIPTION	REMARKS
56616	Anchor (sleeve)	for mains lead	60384	Panel with sockets	for aerial/earth, etc.
59395	Back	for cabinet (Welwyn sets)	59675	Panel with tags	for mains adjustment
62151	Back	for cabinet (Dublin sets)	59051	Plate, anchor	for mains lead
62076	Badge, Murphy	for front of cabinet	37975	Plug (black)	for earth
60177	Bracket, mounting (2)	for socket panel (Dublin sets)	37974	Plug (red)	for aerial
59086	Cabinet	(Welwyn sets)	59069	Pointer and carrier	(Welwyn sets)
60181	Cabinet	(Dublin sets)	59427	Pointer and carrier	(Dublin sets)
48466	Can (2)	for i.f. transformers	59078	Rail	for pointer
46903	Can	for L10/L11/L12	55226	Rectifier, metal (M.R.1)	Westinghouse 15B35
59063	Clamp (2)	scale fixing (Welwyn sets)	59195	Reflector	for scale (Welwyn sets)
59424	Clamp (4)	scale fixing (Dublin sets)	59197	Reflector	for scale (Dublin sets)
14330	Clamp	for leads on T2	55779	Retainer (4)	for i.f.t. cores
52292	Clip, retaining	for L10/L11/L12	59058	Scale, tuning	glass (Welwyn sets)
37973	Clip, spring	for leads to T2	60395	Scale, tuning	glass (Dublin sets)
59066	Collar	for anchoring tuning spindle	10421	Screw, grub 4BA	for collar on tuning spindle
3962/1	Cord 47 in.	for tuning drive	10412	Screw, grub (4)	for tuning knobs
46911	Core, iron dust (4)	for i.f. transformers	14768	Spacer (4)	inside chassis mounting grommets
46916	Core, iron dust (2)	for L5 and L7	14768	Spacer (3)	inside ganged capacitor mounting grommets
46913	Core, iron dust (2)	for L11 and L12	59070	Spindle, tuning	
59079	Drum, tuning	(Welwyn sets)	59091	Spring (4)	for knobs
49242	Drum, tuning	(Dublin sets)	19448	Spring, tension	for drive cord
15633	Eyelite (4)	inside V1 and V3 mounting grommets	57315	Strip, clamping (3)	for L1, L2/L3 and L8/L9
60008	Foil, adhesive	plate aerial (Welwyn sets)	59107	Switch, waveband	
56622	Grommet (7)	for chassis and ganged capacitor mounting	40134	Tag (3)	for mains adjustment panel for lampholder (Dublin sets)
42844	Grommet (4)	for V1 and V3 mounting	60178	Tag, mounting (2)	for mains voltage adjustment
60060	Knob (2)	volume and tuning	40135	Terminal, spade	for V1, V2, and V3
59337	Knob (2)	wave band, tone (Welwyn sets)	51451	Valve holder, B8A (3)	for V4
61300	Knob (2)	wave band, tone (Dublin sets)	5687	Valve holder, I.O.	for chassis and ganged capacitor mounting grommets
16882	Lamp (2)	6.5V, 0.3A, m.e.s.	58554	Washer (14)	
56453	Lampholder (2)				
58794	Loudspeaker	8 in. dia. (Welwyn sets)	47911	Washer	for tuning spindle
61729	Loudspeaker	8 in. dia. (Dublin sets)	58555	Washer, felt (2)	for volume and tuning knobs
48506	Pad, rubber channel	for edges of tuning scale	58556	Washer, felt (2)	for wave band and tone knobs
59062	Pad, moulded rubber	for lower corners of tuning scale (Welwyn sets)			



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 (Welwyn sets) 465 Kc/s (Dublin sets)	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 (Welwyn sets) 465 Kc/s (Dublin sets)	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 (Welwyn sets) 465 Kc/s (Dublin sets)	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.) 1363 Kc/s (220 m.)	As above	As above	2.25 cm.	L11 (osc.) at chassis rear L5 (ae.) at chassis rear
L	As above	176.5 Kc/s (1700 m.) 300 Kc/s (1000 m.)	As above	As above	11.45 cm. 4.1 cm. 12.75 cm.	C24 (osc.) at chassis front C8 (ae.) at chassis rear L12 (osc.) at chassis front L7 (ae.) 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	13.9 cm. 2.35 - 2.65 cm.	C23 (osc.) at chassis front C7 (ae.) at chassis rear No adjustments