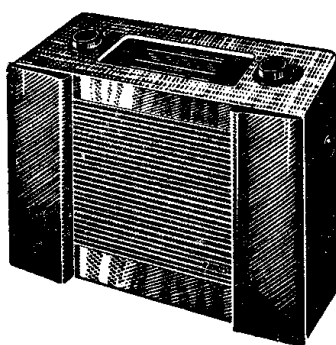


# MURPHY SERVICE INSTRUCTIONS

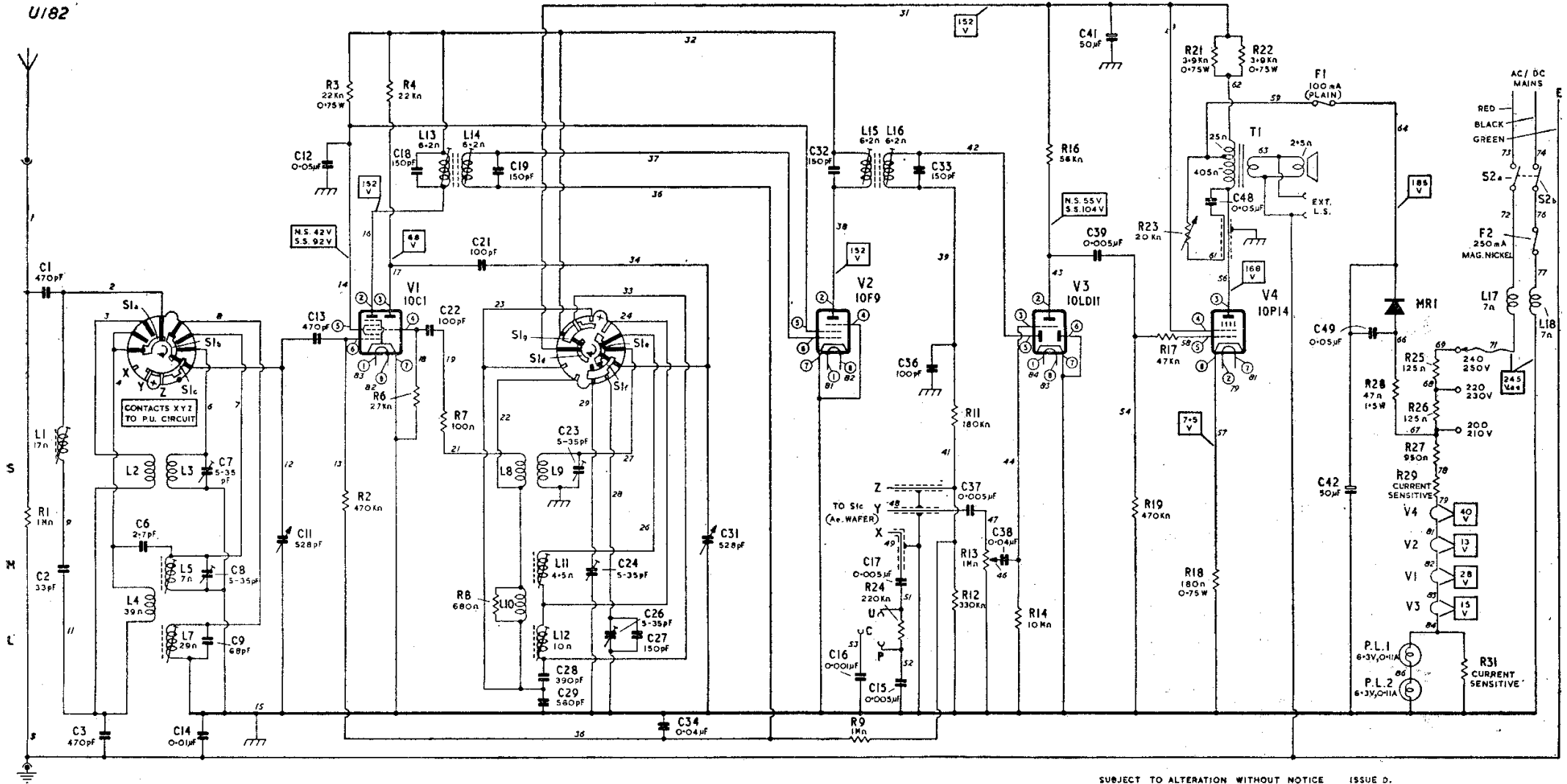


## SPECIFICATION

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:		14½ in. high, 20 in. wide, 7 in. deep
WEIGHT:		16 lb. approximately
RELEASED:		August 1952
PRICE:		£18 1s. od. plus P.T.

*Issued by*

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



SUBJECT TO ALTERATION WITHOUT NOTICE ISSUE D.

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.

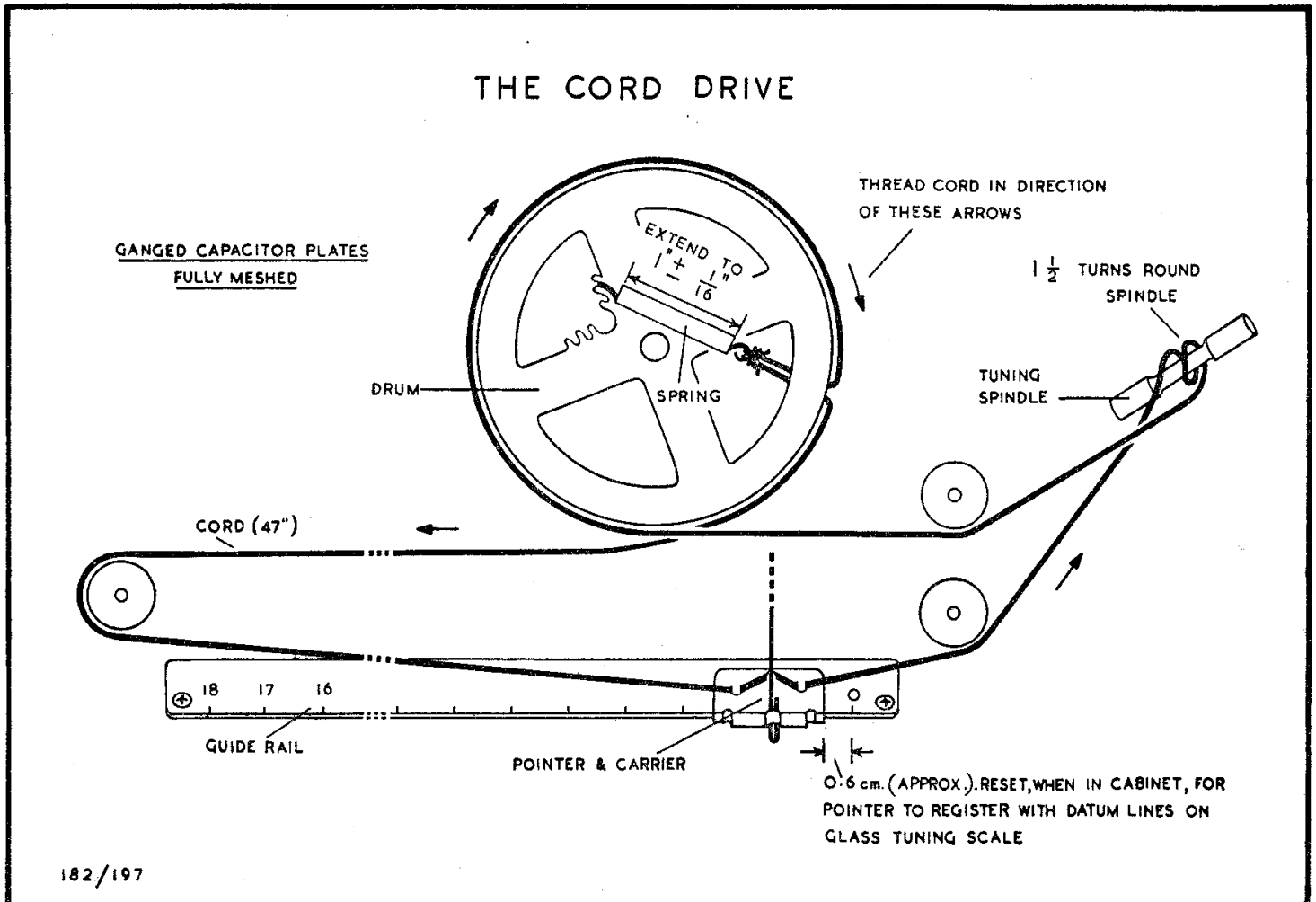
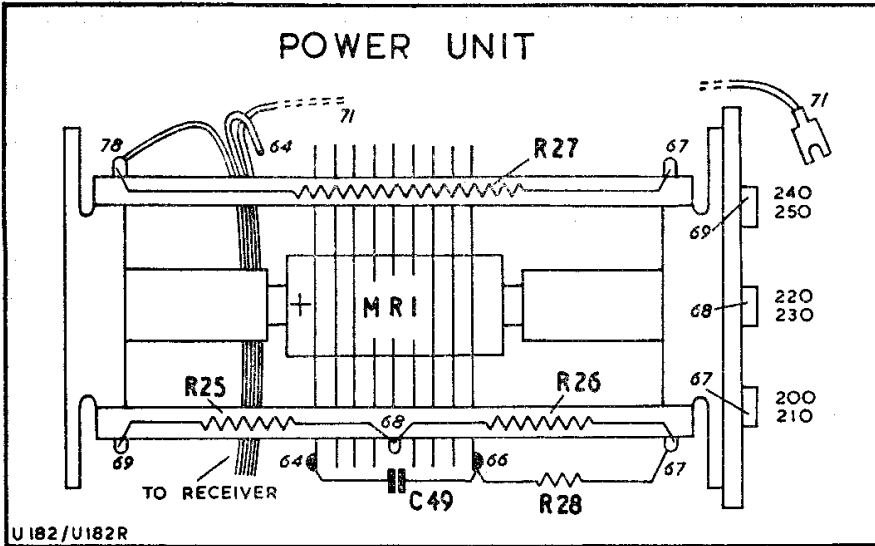
Component terminals and connecting leads are identified by test point (t.p.) numbers which correspond with those appearing on the chassis drawings.

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

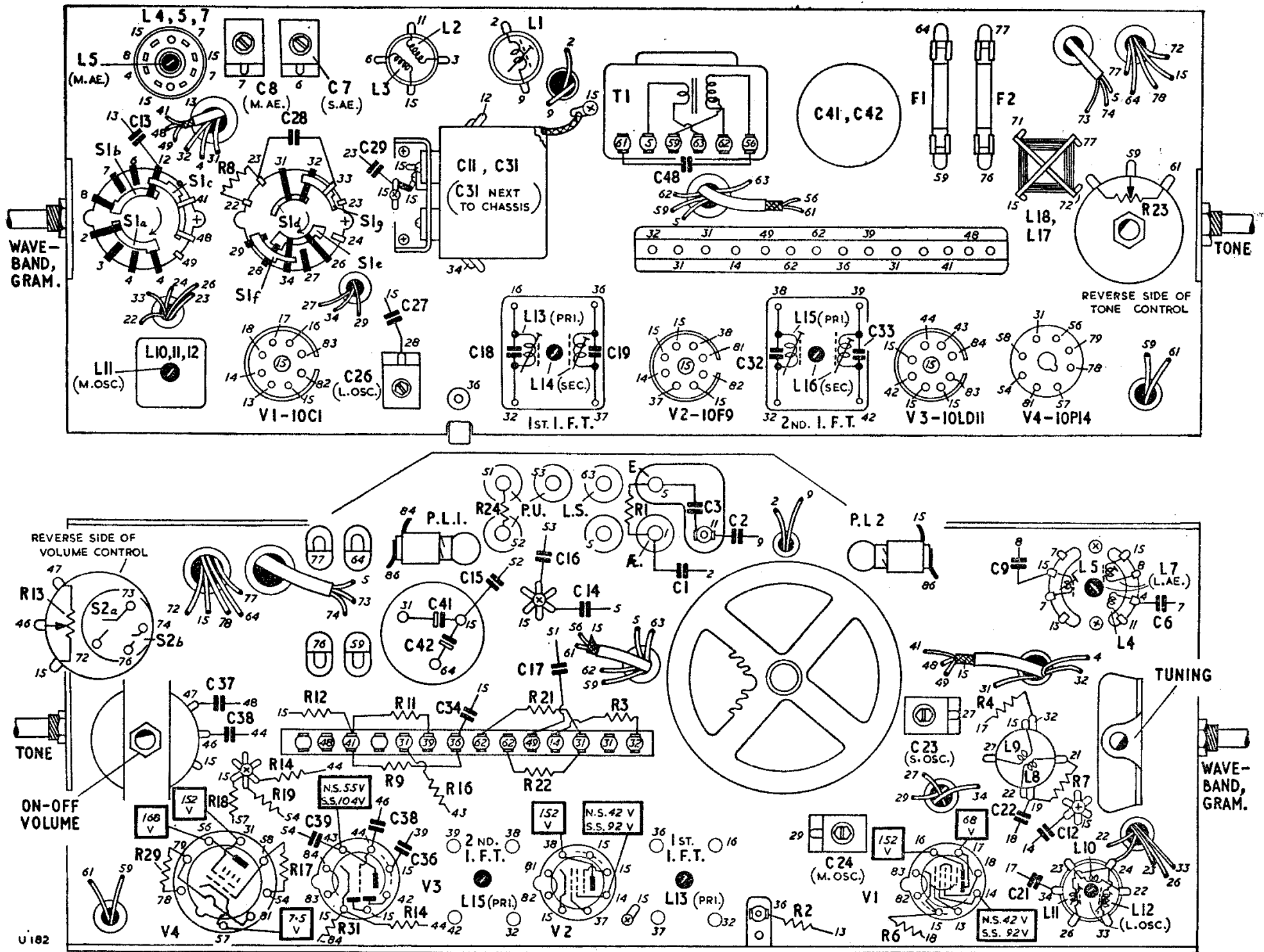
- cer. — ceramic
- p.s.m. — protected silvered mica
- tub. — paper tubular
- s.tub. — sealed paper tubular (metal cased)
- m.tub. — metallized paper tubular
- elec. — electrolytic
- V d.c. — d.c. voltage rating
- V a.c. — a.c. voltage rating
- W — wattage rating
- w.w. — wire wound
- ve — negative temperature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



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
37480	C7	5-35 pF	Trimmer, S ae.	62502	R13	1 MΩ	Volume Control, log.
37480	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.	25605	R16	56 KΩ	10%, 0.6W
59075	C11	528 pF (swing)	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
41416	C16	0.001 μF	25%, tub., 1000V d.c.	62503	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
37480	C23	5-35 pF	Trimmer, S osc.	50611	R29	—	-ve, S.T.C. type CZ3
37480	C24	5-35 pF	Trimmer, M osc.	50611	R31	—	-ve, S.T.C. type CZ3
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)				
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.	59104	{ 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	55895	{ L13	6.2 Ω	Pri.
27397	R2	470 KΩ	20%, 0.6W	55895	{ L14	6.2 Ω	Sec.
25453	R3	22 KΩ	10%, 0.75W	55895	{ L15	6.2 Ω	Pri.
25445	R4	22 KΩ	10%, 0.6W	55895	{ 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	T1	{ 405+25 Ω	Pri. } o.t.

PART NO.	DESCRIPTION	REMARKS	PART NO.	DESCRIPTION	REMARKS
61389	Anchor (sleeve)	for mains lead	58794	Loudspeaker	8 in. dia.
59683	Back	for cabinet	59062	Pad, moulded rubber (2)	for lower corners of tuning scale
62076	Badge, Murphy		48506	Pad, rubber channel (2)	for edges of tuning scale
59068	Bracket, mounting	for ganged capacitor	62875	Panel	Ae. and E, with sockets
59086	Cabinet		62876	Panel and clip	for fuses
46903	Can	for L10/L11/L12	59721	Panel and tags	for mains adjustment
48466	Can (2)	for i.f. transformers	56628	Pin (3)	for pulleys
34184	Clamp	for C41/C42	59051	Plate, anchoring	for mains lead
59063	Clamp (2)	for fixing scale to cabinet	37975	Plug (black)	for earth
52292	Clip, retaining	for L10/L11/L12	37974	Plug (red)	for aerial
54125	Clip, spring	for mains filter	59069	Pointer and carrier	
1871/2	Compound	for iron dust cores	49593	Pulley (3)	for cord drive
3962/1	Cord, 47 in.	for tuning drive	59078	Rail	for pointer
10706	Core, iron dust	for L1	55226	Rectifier, metal (M.R.1)	Westinghouse 15B35
46916	Core, iron dust (2)	for L5 and L7	59196	Reflector	for tuning scale
46913	Core, iron dust (2)	for L11 and L12	55779	Retainer (4)	for i.f.t. cores
46911	Core, iron dust (4)	for i.f. transformers	57140	Rivet (2)	for panel insulating cover
59079	Drum	for ganged capacitor	59058	Scale, tuning	glass
15633	Eyelet (4)	inside V1 and V3 mounting grommets	103514	Screw, 4BA 7/8 in. (4)	for chassis fixing
1827/1	Fabric	for cabinet	384962	Screw, 2BA 3/8 in. (2)	for fixing cabinet back
43074	Feet, felt (4)	for cabinet	14768	Spacer, mounting (7)	for chassis and C11/C31
60008	Foil, adhesive	for plate aerial	59792	Spindle, tuning	
33202	Fuse, F1	100mA., plain	59091	Spring (4)	for control knobs
52122	Fuse, F2	250mA., mag. nickel	19448	Spring, tension	for drive cord
42844	Grommet (4)	for V1 and V3 mounting	57315	Strip, clamping (3)	for L1, L2/L3, and L8/L9
56622	Grommet, mounting (7)	for chassis and C11/C31	59107	Switch	wave band
61795	Insulating cover	for panel	40134	Tag (3)	for mains adjustment panel
59137	Knob (2)	for volume and tuning controls	40135	Terminal, spade	for mains adjustment
59138	Knob (2)	for wave band and tone controls	51451	Valve holder, B8A (3)	for V1, V2, and V3
60037	Label	for plate aerial	5687	Valve holder, I.O.	for V4
16885	Lamp (2)	6.3V, 0.11A, m.e.s.	14943	Washer (2)	for cabinet back fixing screws
56453	Lampholder	for P.L. 2	58561	Washer, chassis strengthening (2)	used with screws for mounting bracket (59068)
59696	Lampholder, insulated	for P.L. 1	58555	Washer, felt (2)	for volume and tuning knobs
			58556	Washer, felt (2)	for wave band and tone knobs
			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 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 $\mu$ 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