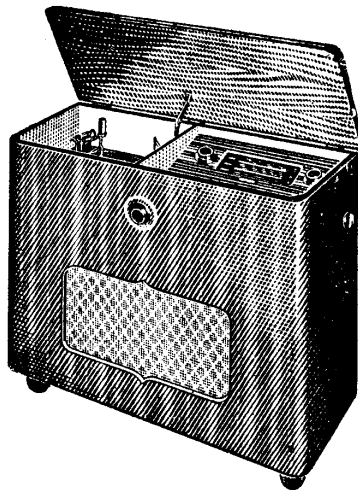


# MURPHY SERVICE INSTRUCTIONS



## SPECIFICATION

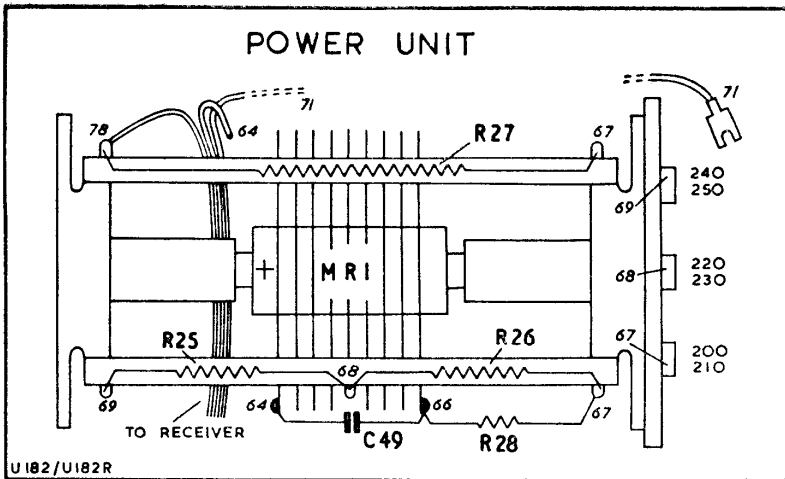
MAINS SUPPLIES:		200-250 volts a.c., 25-60 c/s, or 200-250 volts d.c.
CONSUMPTION:	Radio:	39 watts average
	Gramophone:	95 watts average
WAVE BANDS:	L:	1000-2000 metres
	M:	187-540 metres
	S:	16.8-50.4 metres
INTERMEDIATE FREQUENCY:		470 Kc/s
VALVES:	Mazda:	10C1, 10F9, 10LD3, 10P14
SCALE LAMPS:		Two 6.3 volts, 0.11 amp., m.e.s.
LOUDSPEAKER:	Type:	8 in. dia., permanent magnet
	Impedance:	3 ohms
CABINET DIMENSIONS:		32 in. high, 35 in. wide, 14½ in. deep
WEIGHT:		70 lb. approximately
RELEASED:		November 1953
PRICE:		£59 12s. 6d. plus p.t.

*Issued by*

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

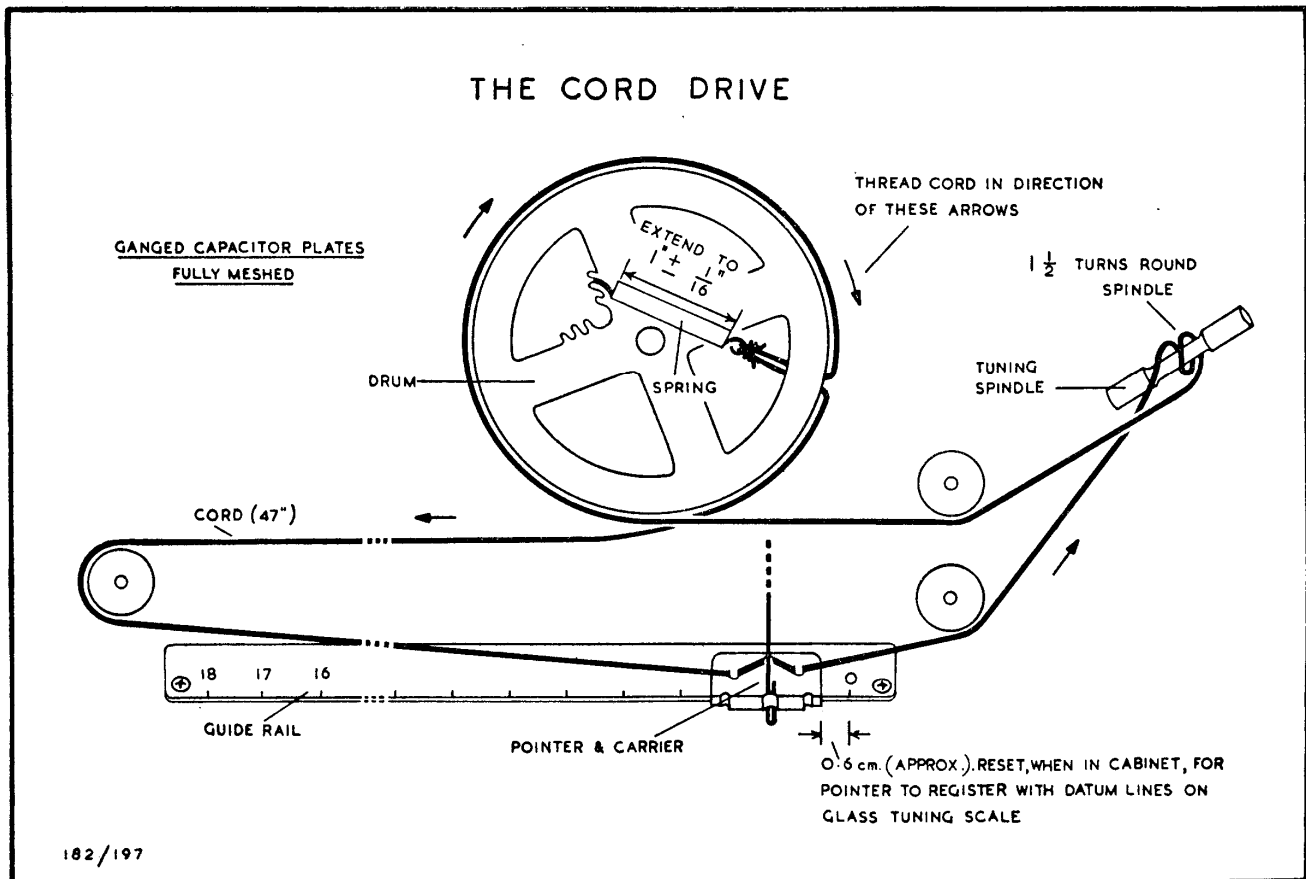
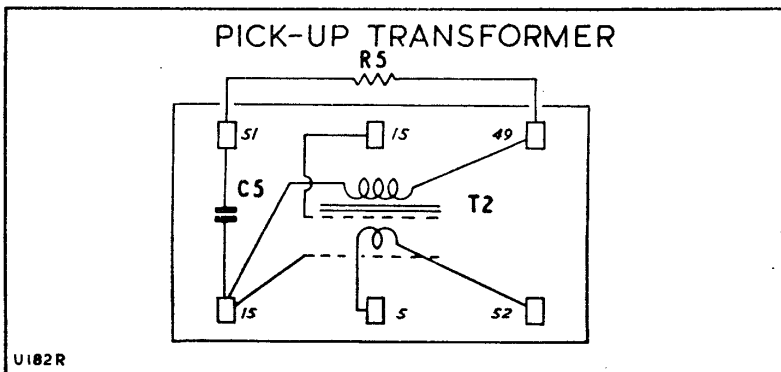
**PHONE: WELWYN GARDEN 3434**

*January 1954*



## PARTS LIST ABBREVIATIONS

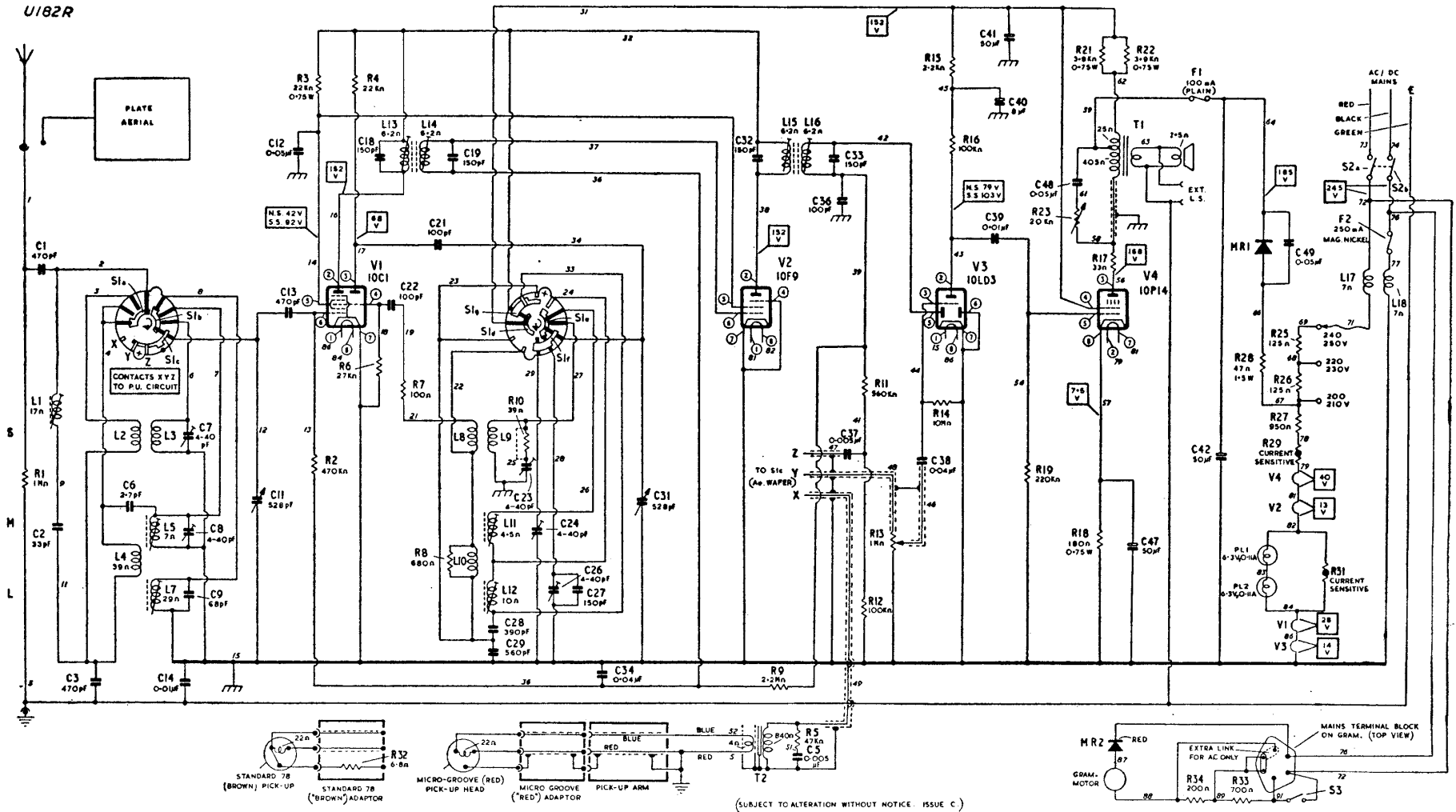
- |          |   |   |
|----------|---|---|
| cer.     | — | ceramic                                     |
| p.s.m.   | — | protected silvered mica                     |
| tub.     | — | paper tubular                               |
| i.s.tub. | — | insulated sealed paper tubular (metal case) |
| m.tub.   | — | 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.	25989	R11	560 K $\Omega$	10%, 0.6W
28299	C2	33 pF	2%, p.s.m., 350V d.c.	27269	R12	100 K $\Omega$	20%, 0.6W
54078	C3	470 pF	20%, cer., 500V d.c.	52826	R13	1 M $\Omega$	Volume Control, log.
49456	C5	0.005 $\mu$ F	25%, m.tub., 150V d.c.	27653	R14	10 M $\Omega$	20%, 0.6W
52143	C6	2.7 pF	20%, cer., 500V d.c.	25061	R15	2.2 K $\Omega$	10%, 0.6W
56322	C7	4-40 pF	Trimmer, S ae.	27269	R16	100 K $\Omega$	20%, 0.6W
56322	C8	4-40 pF	Trimmer, M ae.	26597	R17	33 $\Omega$	20%, 0.6W
23606	C9	68 pF	10%, p.s.m., 350V d.c.	24653	R18	180 $\Omega$	10%, 0.75W
59075	C11	528 pF (swing)	Ganged capacitor, ae. section (with C31)	27333	R19	220 K $\Omega$	20%, 0.6W
41403	C12	0.05 $\mu$ F	20%, tub., 350V d.c.	25165	R21	3.9 K $\Omega$	10%, 0.75W
54083	C13	470 pF	20%, cer., 500V d.c.	25165	R22	3.9 K $\Omega$	10%, 0.75W
51766	C14	0.01 $\mu$ F	20%, tub., 275V a.c.	52807	R23	20 K $\Omega$	Tone control, log.
52631	C18	150 pF	5%, p.s.m., 350V d.c.	59452	{ R25	125 $\Omega$	5%, w.w.
52631	C19	150 pF	5%, p.s.m., 350V d.c.	59451	{ R26	125 $\Omega$	5%, w.w.
54070	C21	100 pF	20%, cer., 500V d.c.	26652	R27	950 $\Omega$	5%, w.w.
54070	C22	100 pF	20%, cer., 500V d.c.	50611	R28	47 $\Omega$	20%, 1.5W
56322	C23	4-40 pF	Trimmer, S osc.	50611	R29	—	-ve, S.T.C. type CZ3
56322	C24	4-40 pF	Trimmer, M osc.	50611	R31	—	-ve, S.T.C. type CZ3
56322	C26	4-40 pF	Trimmer, L osc.	28587	R32	6.8 $\Omega$	10%, 0.6W
23622	C27	150 pF	10%, p.s.m., 350V d.c.	63363	{ R33	700 $\Omega$	w.w.
28311	C28	390 pF	1%, p.s.m., 350V d.c.		{ R34	200 $\Omega$	w.w.
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 $\mu$ F	25%, m.tub., 150V d.c.				
54070	C36	100 pF	20%, cer., 500V d.c.				
41409	C37	0.005 $\mu$ F	25%, tub., 500V d.c.				
49454	C38	0.04 $\mu$ F	25%, m.tub., 150V d.c.				
51765	C39	0.01 $\mu$ F	20%, i.s.tub., 350V d.c.				
31343	C40	8 $\mu$ F	+50% —20%, elec., 350V d.c.				
56152	{ C41	50 $\mu$ F	+50% —20%, elec., 275V d.c.				
	{ C42	50 $\mu$ F					
31314	C47	50 $\mu$ F	+50% —20%, elec., 12V d.c.				
41424	C48	0.05 $\mu$ F	20%, tub., 750V d.c.				
41424	C49	0.05 $\mu$ F	20%, tub., 750V d.c.				
27461	R1	1 M $\Omega$	20%, 0.6W				
27397	R2	470 K $\Omega$	20%, 0.6W				
25453	R3	22 K $\Omega$	10%, 0.75W				
25445	R4	22 K $\Omega$	10%, 0.6W				
27205	R5	47 K $\Omega$	20%, 0.6W				
25477	R6	27 K $\Omega$	10%, 0.6W				
27461	R7	100 $\Omega$	10%, 0.6W				
24869	R8	680 $\Omega$	10%, 0.6W				
26213	R9	2.2 M $\Omega$	10%, 0.6W				
24389	R10	39 $\Omega$	10%, 0.6W				
PART NO.	CIRCUIT NO.	RESISTANCE (D.C.)	REMARKS				
55856	L1	17 $\Omega$	I.f. retractor				
59103	{ L2	—	Coupling } S ae.				
	{ L3	—	Tuned } S ae.				
	{ L4	39 $\Omega$	Coupling } M and L ae.				
59105	{ L5	7 $\Omega$	M tuned } M and L ae.				
	{ L7	29 $\Omega$	L tuned } M and L ae.				
59104	{ L8	—	Coupling } S osc.				
	{ L9	—	Tuned } S osc.				
59106	{ L10	—	Coupling } M and L osc.				
	{ L11	4.5 $\Omega$	M tuned } M and L osc.				
	{ L12	10 $\Omega$	L tuned } M and L osc.				
55895	{ L13	6.2 $\Omega$	Pri. } 1st i.f.t.				
	{ L14	6.2 $\Omega$	Sec. } 1st i.f.t.				
55895	{ L15	6.2 $\Omega$	Pri. } 2nd i.f.t.				
	{ L16	6.2 $\Omega$	Sec. } 2nd i.f.t.				
54223	{ L17	7 $\Omega$	Mains filter				
	{ L18	7 $\Omega$					
59408	T1	{ 405 + 25 $\Omega$	Pri. } o.t.				
		{ —	Sec. } o.t.				
61974	T2	{ 4 $\Omega$	Pri. } p.u.t.				
		{ 840 $\Omega$	Sec. } p.u.t.				

PART NO.	DESCRIPTION	REMARKS	PART NO.	DESCRIPTION	REMARKS
61389	Anchor (sleeve)	for mains lead	62876	Panel and clip	for fuses
62076	Badge, Murphy		62875	Panel and sockets	
62517	Back (large)	for cabinet	59721	Panel and tags	for mains adjustment
61958	Back (small)	for cabinet	62169	Pick-up adaptor	for BROWN head
60043	Bracket, storage	for un-used pick-up	63215	Pick-up adaptor	for RED head
62616	Cabinet	with record compartment	62167	Pick-up head, BROWN	Decca "78" 30 $\Omega$
46903	Can	for L10/L11/L12	62168	Pick-up head, RED	Decca "33" 30 $\Omega$
59063	Clamp (2)	for scale corners	59051	Plate, anchoring	for mains lead
59424	Clamp (2)	for scale lower edge	61959	Plate, mounting	for T2
54125	Clip	for mains filter	45974	Plug (2)	for loudspeaker
52292	Clip, retaining	for L10/L11/L12	37975	Plug, BLACK	for earth
14738	Collar (8)	used with damper (55521)	37974	Plug, RED	for aerial
3962/1	Cord 47 in.	for tuning drive	59069	Pointer and carrier	
61975	Cover, insulating	for socket panel	59078	Rail	for pointer
55521	Damper, rubber (4)	for gram unit mounting	55226	Rectifier, metal (M.R.1)	Westinghouse 15B35
60042	Disc, ornamental	for volume control	63364	Rectifier, metal (M.R.2)	for gramophone unit
59079	Drum	for ganged capacitor	59196	Reflector	for tuning scale
15633	Eyelet (4)	inside V1 and V3 grommets	57140	Rivet, plastic (2)	for socket panel cover
60008	Foil, adhesive	for plate aerial	59058	Scale, tuning	glass
33202	Fuse, F1	100mA, plain	59090	Sleeve, insulating (2)	tone and wave band spindles
52122	Fuse, F2	250mA, Mag-nickel	59559	Sleeve, insulating (2)	volume and tuning spindles
61960	Gramophone unit	Garrard RC75 A/U, less p.u. heads, and adaptors	14768	Spacer, mounting (6)	for chassis and C11/C31
42845	Grommet	for spare p.u. holder	59091	Spring (4)	for knobs
42844	Grommet (4)	for V1 and V3 mounting	19448	Spring, tension	for tuning drive cord
56622	Grommet mounting (7)	for chassis and C11/C31	61123	Stay	for lid
62565	Insulator, Presspahn	for volume control	57315	Strip, clamping (3)	for L1, L2/L3, L8/L9
59137	Knob, large (3)		59107	Switch	wave band
59138	Knob, small	waveband	40134	Tag (3)	for mains adjustment panel
16885	Lamp (2)	6.3V, 0.11A	59111	Tag, spring	contact for plate aerial
59696	Lamp holder (2)		40135	Terminal, spade	for mains adjustment
61728	Loudspeaker	8 in. diameter	51451	Valve holder B8A (3)	for V1, V2, V3
59062	Pad, moulded rubber (2)	for tuning scale corners	5687	Valve holder, I.O.	for V4
48506	Pad, rubber channel (2)	for tuning scale edge	58555	Washer, felt (3)	for large knobs
			58556	Washer, felt	for wave band knob
			58554	Washer, mounting (14)	for chassis and C11/C31

U182R



(SUBJECT TO ALTERATION WITHOUT NOTICE ISSUE C)

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.

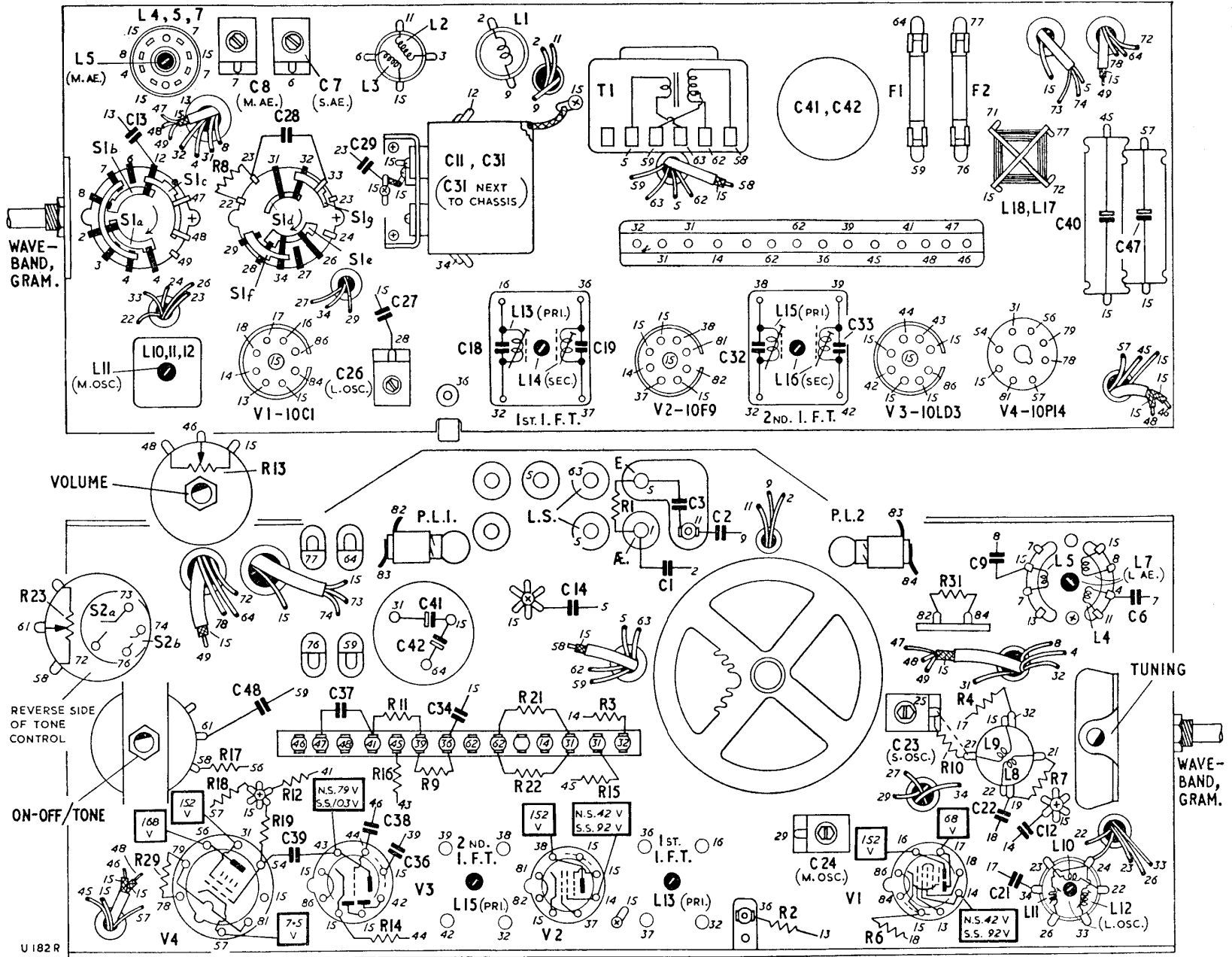
Where the resistance of a coil is less than one ohm, the value is omitted.

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

All valves are Mazda types, and their pin numbers are shown within small circles.

**Squegging.** If squegging occurs with some frequency changer valves, R10 should be brought into circuit by cutting the wire link across it.

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