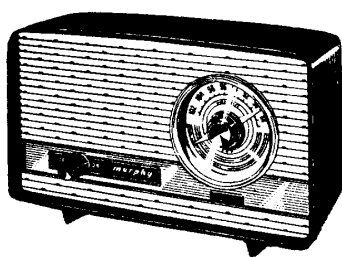


MURPHY SERVICE MANUAL



SPECIFICATION

MAINS SUPPLIES:		200-250V a.c., 25-100 c/s 200-250V d.c.
CONSUMPTION:		40 watts average
WAVE-RANGES:	M: L:	187-571 metres 1,000-2,000 metres
INTERMEDIATE FREQUENCY:		470 Kc/s
VALVES:		10C14, 10FD12, 10PL12, U381
SCALE LAMPS:		Two 19V, 0.097 A, m.e.s.
LOUDSPEAKER:	Type: Impedance:	5 in. dia., permanent magnet 3 ohms
OVERALL DIMENSIONS:		11 3/8 in. wide, 7 1/8 in. high, 5 1/4 in. deep
WEIGHT:		5 lb.
RELEASED:		May, 1959
PRICE:		£9 10s. 2d. plus P.T.

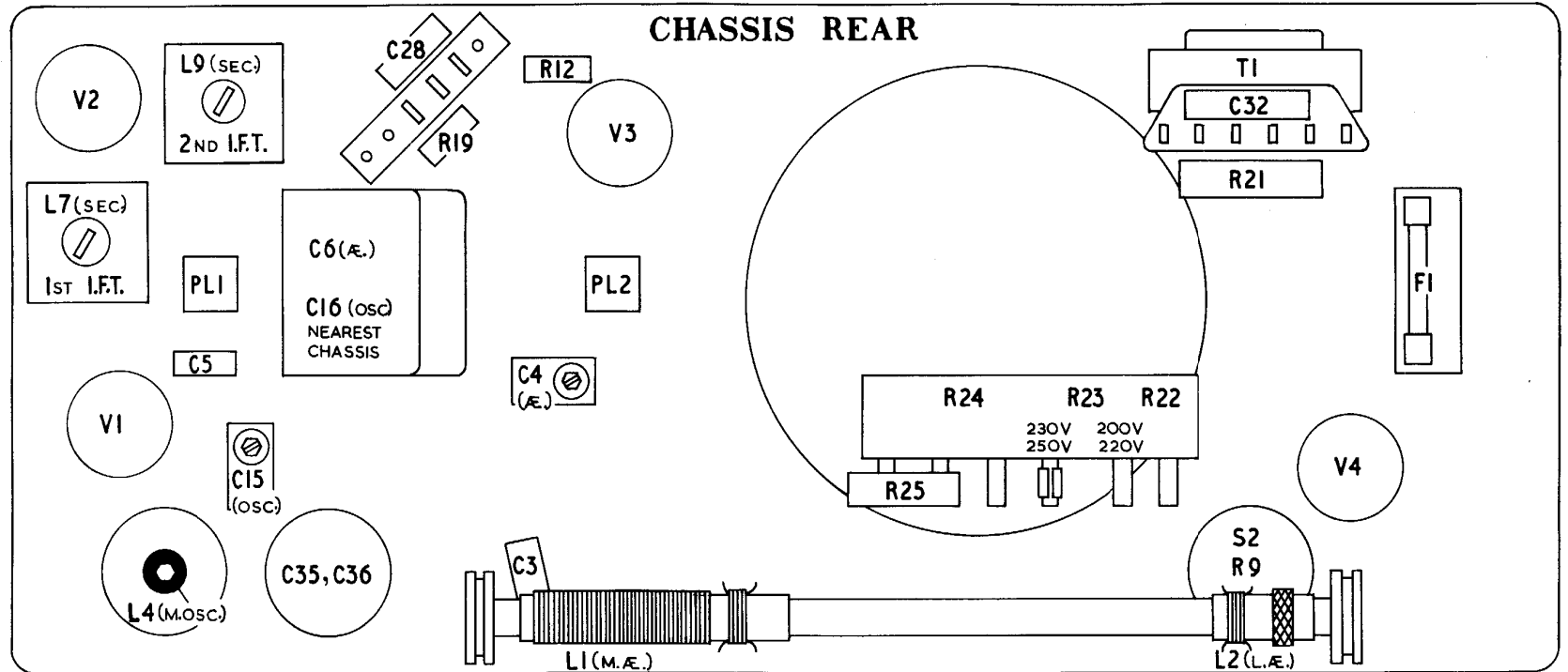
Issued by

MURPHY RADIO LTD
WELWYN GARDEN CITY · HERTS

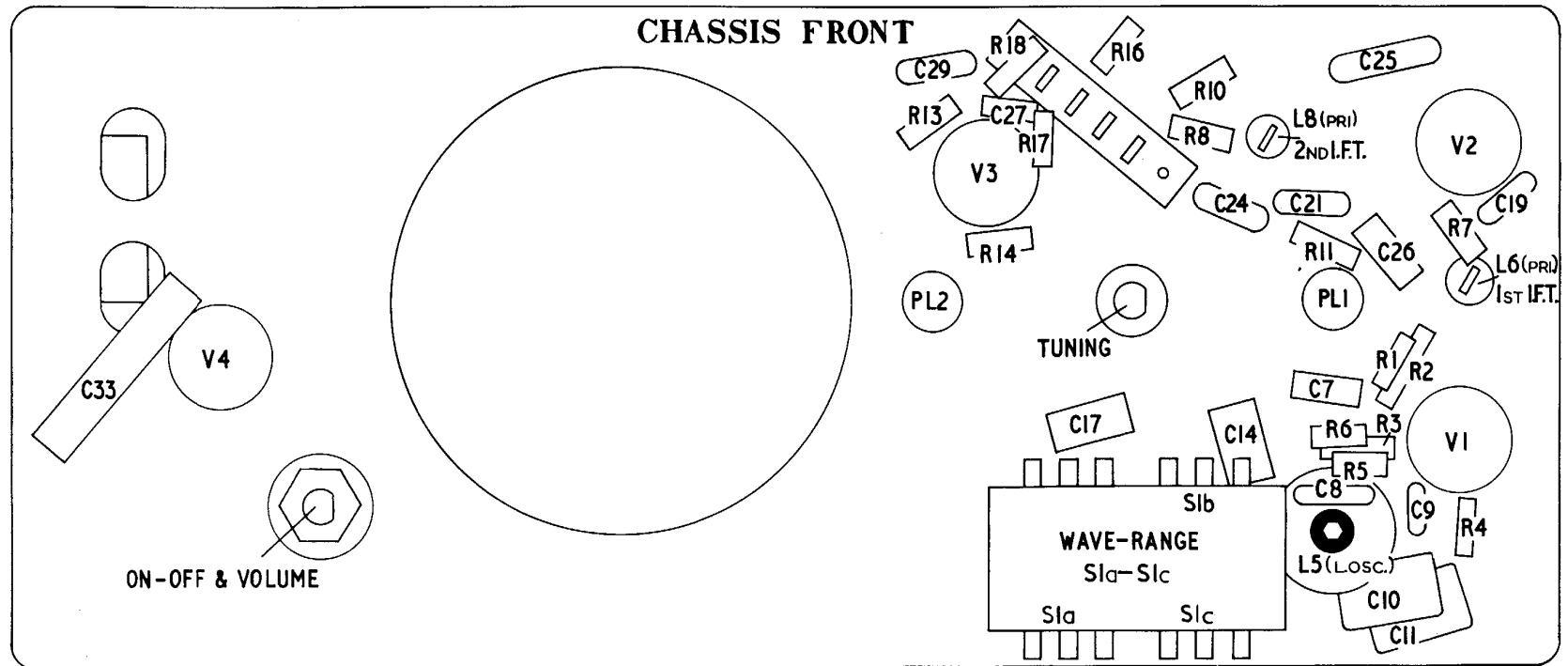
Telephone: **WELWYN GARDEN 3434**

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The layout of the front and the rear of the chassis.



U504



CIRCUIT ALIGNMENT

1. **Receiver output.** Make all adjustments for maximum output with the Volume control at maximum. Adjust the signal generator attenuator so that this output does not exceed 180 mW, or approximately 0.7 V across the loudspeaker speech coil.

2. **Trimming tools.** A hexagonal headed non-metallic trimming tool, which consists of a **Blade** Part No.84190 price 6d. each net, and a **Handle** Part No.84191 price 10d. each net, is required for adjusting the L & M osc. coil cores. Also, a narrow bladed non-metallic tool (Part No.76539, price 6d. each net) is required for adjusting the i.f.t. cores. These are obtainable from Murphy Radio Ltd, Service Department. Both of the oscillator coil cores can be adjusted from one side of the chassis.

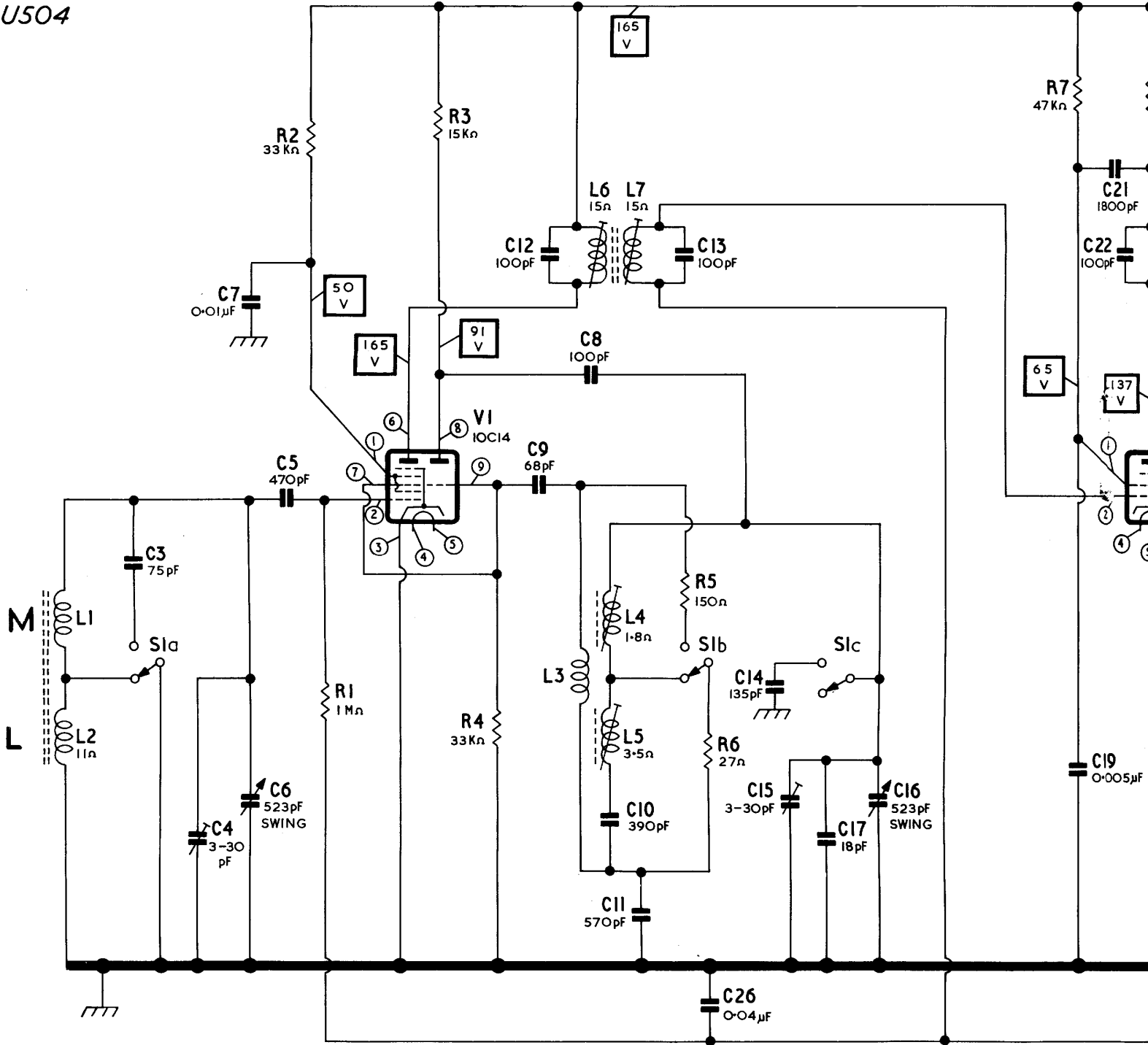
3. **Tuning pointer.** When the ganged capacitor is at maximum capacitance, the top and bottom edges of the pointer must coincide with the bottom of the first "M" in "MEDIUM" and the top of the "G" in "LONG" respectively.

4. **Coupling coil.** This is required during the alignment of the r.f. circuits and should consist of a coil (about 20 turns) wound on a 6 in. dia. former and placed about 1 ft. away from the h.f. end of the receiver, with its axis in line with the aerial rod. Connect the coil to the signal generator by means of a "straight through" lead.

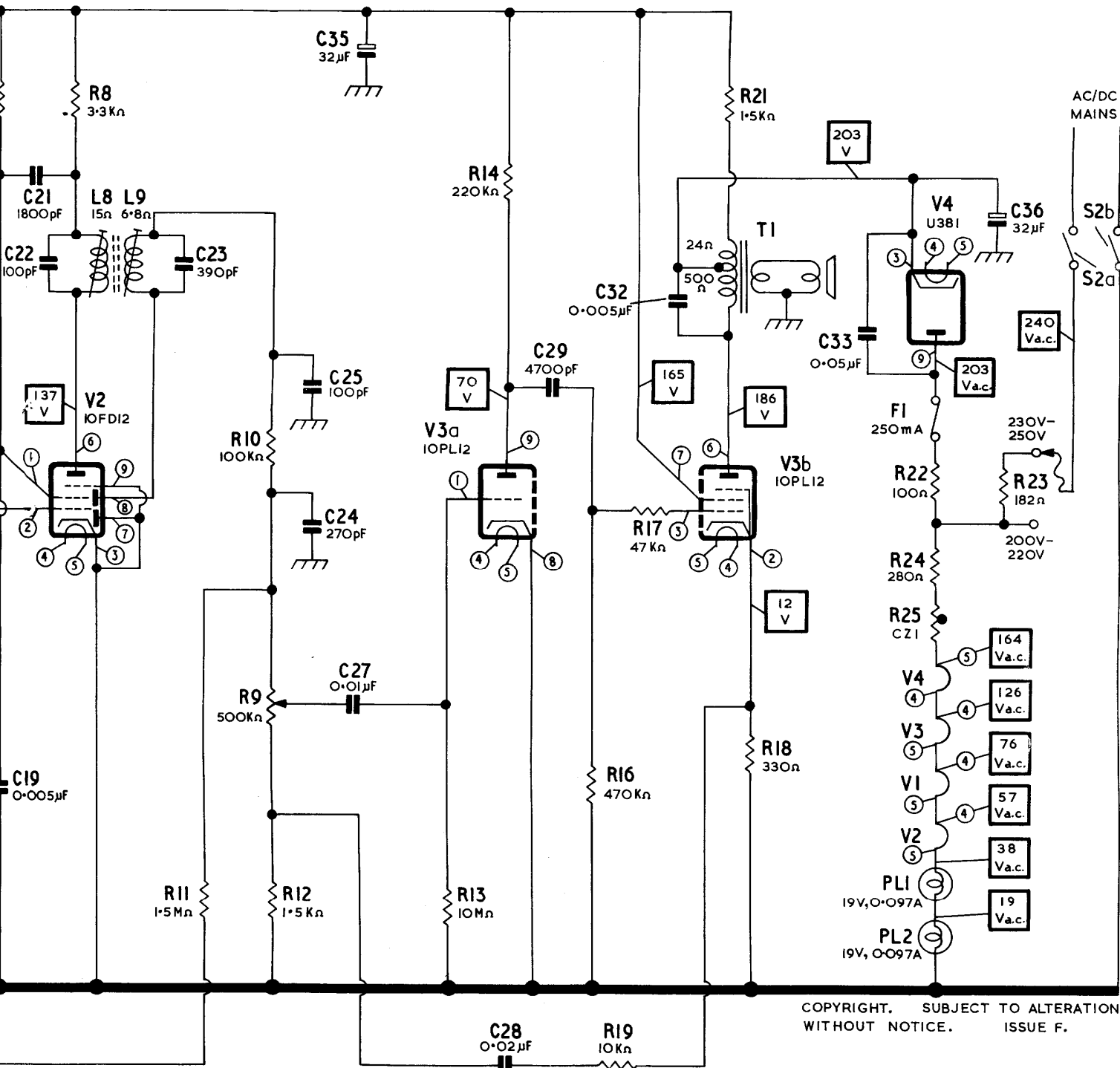
5. **Aerial coils.** Only replacement aerial coils need to be adjusted. Start by sliding the coils towards their respective ends of the rod and then follow the instructions in the M and L sections of the table below, adjusting L1 and L2 for maximum output by sliding them along the rod. Repeat the M adjustments after completing the L adjustments. When connected in the correct phase, the approximate distance between the end of each coil former and the adjacent face of the supporting grommet should be ¼ in. Finally, secure the coils to the aerial rod with cellulose cement.

CIRCUIT ALIGNMENT TABLE

CIRCUIT	NOTES	SIG. GEN. FREQUENCY	SIG. GEN. TERMINATION	SIG. GEN. CONNECTIONS	RECEIVER SETTING	ADJUSTMENTS
2nd i.f.t.	Unscrew pri. core (bottom of can) before starting adjustments	470 Kc/s	Via a 0.01 uF capacitor	V2 grid 1 (pin 2)	Ganged capacitor at maximum capacitance	L9 (sec.) top of can L8 (pri.) bottom of can DO NOT READJUST SEC. CORE
1st i.f.t.	As above. Switch to M band	470 Kc/s	As above	V1 grid 1 (pin 2)	As above	L7 (sec.) top of can L6 (pri.) bottom of can DO NOT READJUST SEC. CORE
M	Fit the chassis to the front panel (see the "Mechanical Notes"). Repeat these adjustments until there is no further improvement	600 Kc/s (500m.)	See note 4 above	See note 4 above	500m. calibration dot	L4 (osc.) L1 (ae.) see note 5 above
		1364 Kc/s (220m.)	As above	As above	220m. calibration dot	C15 (osc.) C4 (ae.)
L		176.5 Kc/s (1700m.)	As above	As above	1700m. calibration dot	L5 (osc.) L2 (ae.) see note 5 above



Circuit voltages are shown within rectangles and were measured with a 20,000 Ω /V meter while the receiver was switched to the M band under no-signal conditions.



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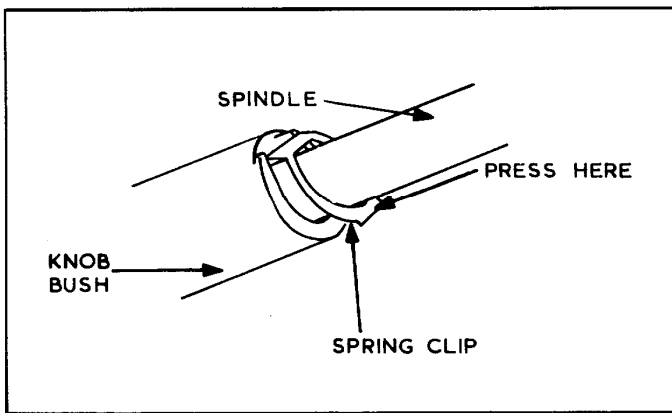
Where the resistance of a coil is less than one ohm the value is omitted. The valve pin numbers are shown within small circles.

MECHANICAL NOTES

Removing the Volume and Tuning knobs. DO NOT ATTEMPT TO PULL THE KNOBS OFF THEIR SPINDLES. They are fastened by a special spring clip (see illustration) which tightens when pulled, and must be released from the rear of the chassis after the cabinet rear has been removed.

To remove a knob, press the flat end of the spring clip towards the knob and simultaneously ease the knob away from the receiver. Use a narrow bladed tool and pass it through the hole in the chassis just beside the control. When removing the Tuning knob, it is advisable to have the ganged capacitor nearly fully closed; the tuning pointer can be gently pushed to one side, if required.

If the receiver chassis is to be removed from the cabinet, it is suggested that the Volume knob is removed first. This will provide some experience of the clip mechanism before attempting to remove the other knob, which has a slightly less accessible clip.



Knob retaining clip

Removing the chassis from the cabinet. Lay the receiver on its face, remove the large screw at the back, and lift off the cabinet rear. Remove the Volume and Tuning knobs as described above, and ease the tuning pointer off its spindle. Remove the strap across the rear of the chassis, unsolder the loudspeaker leads, and lift the chassis away from the cabinet front.

Refitting the chassis in the cabinet. Re-assemble the chassis and cabinet front, making sure that the mounting pad on each side of the chassis is in position, and that the pin extending from the back of the Wave-range knob locates correctly in the slot of the switch slider on the chassis. Temporarily fasten the chassis to the cabinet front with strong rubber bands or cord loops, refit the metal strap across the rear of the chassis, and re-connect the loudspeaker leads.

With the ganged capacitor at maximum capacitance slide the pointer on to the tuning spindle until it is just clear of the tuning scale, and position it so that the top and bottom edges coincide with the bottom of the first "M" in "MEDIUM" and the top of the "G" in "LONG" respectively. Then, while supporting the ganged capacitor at the rear, push on the Tuning knob until it is just clear of the front panel.

Remove the rubber bands or cord loops temporarily holding the chassis to the cabinet front, and refit the cabinet rear; make sure that the lugs inside the cabinet front and rear locate correctly in the rubber mounting pads on the chassis. Finally push on the Volume control knob as far as it will go. It will be noticed that the knob springs away from the front panel, leave the knob in this position as this gives the correct working clearance between the knob and the trim.

ALTERNATIVE VALVES

V1 - UCH81
V2 - UBF89

V3 - UCL82
V4 - UY85

PARTS LIST (Electrical Components)

The d.c. resistance quoted for the coil and transformer windings is an average figure and should be used as a general guide only; it is omitted where the value is less than one ohm.

The following abbreviations are used in the table:

cer.	- ceramic	p.f.tub.	- plastic film tubular
p.s.m.	- protected silvered mica	elec.	- electrolytic
tub.	- paper tubular	V d.c.	- d.c. voltage rating
m. tub.	- metallized paper tubular	W	- wattage rating

PART NO.	CIRCUIT NO.	VALUE	TOLERANCE AND REMARKS	PART NO.	CIRCUIT NO.	VALUE	TOLERANCE AND REMARKS
28405	C3	75 pF	1%, p.s.m., 350 V d.c.	68472	C29	4,700 pF	+50% - 25%, cer., 500 V d.c.
56328	C4	3-30 pF	Trimmer, M ae.	51572	C32	0.005 uF	25%, tub., 750 V d.c.
54083	C5	470 pF	20%, cer., 500 V d.c.	51559	C33	0.05 uF	20%, tub., 1,000 V d.c.
82236	C6	523 pF	Ganged capacitor, ae. section (with C16)	82274	{ C35 C36	{ 32 uF 32 uF }	{ +50% - 20%, elec., 275 V d.c.
49453	C7	0.01 uF	25%, m. tub., 350 V d.c.				
67505	C8	100 pF	10%, cer., 750 V d.c.	27461	R1	1 MΩ	20%, 0.6 W
67503	C9	68 pF	10%, cer., 750 V d.c.	25517	R2	33 KΩ	10%, 0.75 W
28311	C10	390 pF	1%, p.s.m., 350 V d.c.	25381	R3	15 KΩ	10%, 0.6 W
80141	C11	570 pF	1%, p.s.m., 350 V d.c.	25509	R4	33 KΩ	10%, 0.6 W
52630	C12	100 pF	5%, p.s.m., 350 V d.c.	24613	R5	150 Ω	10%, 0.6 W
52630	C13	100 pF	5%, p.s.m., 350 V d.c.	24325	R6	27 Ω	10%, 0.6 W
28406	C14	135 pF	1%, p.s.m., 350 V d.c.	25573	R7	47 KΩ	10%, 0.6 W
56328	C15	3-30 pF	Trimmer, M osc.	25125	R8	3.3 KΩ	10%, 0.6 W
82236	C16	523 pF	Ganged capacitor, osc. section (with C6)	68577	R9	500 KΩ	Volume, log., with S2
23658	C17	18 pF	10%, p.s.m., 350 V d.c.	27269	R10	100 KΩ	20%, 0.6 W
57795	C19	0.005 uF	25%, m.tub., 250 V d.c.	27493	R11	1.5 MΩ	20%, 0.6 W
54090	C21	1.800 pF	20%, cer., 500 V d.c.	26917	R12	1.5 KΩ	20%, 0.6 W
52630	C22	100 pF	5%, p.s.m., 350 V d.c.	27653	R13	10 MΩ	20%, 0.6 W
66298	C23	390 pF	5%, p.f.tub., 350 V d.c.	27333	R14	220 KΩ	20%, 0.6 W
54080	C24	270 pF	20%, cer., 500 V d.c.	27397	R16	470 KΩ	20%, 0.6 W
66169	C25	100 pF	20%, cer., 750 V d.c.	27205	R17	47 KΩ	20%, 0.6 W
49454	C26	0.04 uF	25%, m. tub., 150 V d.c.	24741	R18	330 Ω	10%, 0.6 W
57815	C27	0.01 uF	25%, m.tub., 150 V d.c.	27077	R19	10 KΩ	20%, 0.6 W
49455	C28	0.02 uF	25%, m.tub., 150 V d.c.	25019	R21	1.5 KΩ	10%, 1.5 W
				78306	{ R22 R23 R24	{ 100 Ω 182 Ω 280 Ω }	{ 5%, w.w.
				50612	R25		Thermister, type CZ1

PART NO.	CIRCUIT NO.	RESISTANCE (D.C.)	TOLERANCE AND REMARKS	PART NO.	CIRCUIT NO.	RESISTANCE (D.C.)	TOLERANCE AND REMARKS
83023	L1	-	M ae.	67694	{ L6 L7	{ 15 Ω 15 Ω	{ Pri. } 1st i.f.t., { Sec. } complete
77796	L2	11 Ω	L ae.	72971	{ L8 L9	{ 15 Ω 6.8 Ω	{ Pri. } 2nd i.f.t., { Sec. } complete
82330	{ L3 L4 L5	{ - 1.8 Ω 3.5 Ω	{ M & L coupling M tuned L tuned } osc.	77519	T1	{ 500+24 Ω -	{ Pri. } o.t. { Sec. }

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PARTS LIST (Mechanical Components)

This list contains only those parts which are not included in the Electrical Parts List; items such as self-tapping screws, bolts and nuts, etc., may be obtained from Murphy Radio Ltd, Service Department. When more than one item is used per receiver, the quantity is given in brackets after the description.

PART NO.	TITLE	DESCRIPTION AND REMARKS	PART NO.	TITLE	DESCRIPTION AND REMARKS
63554	Aerial rod	less coils and supports	81952	Knob and disc (black)	for Volume control
82341	Badge, Murphy	on cabinet front	81954	Knob and disc (white)	for Volume control
82374	Bush, nylon	for cabinet rear fixing screw	81624	Knob, slider (black)	for Wave-Range switch
84853	Cabinet front	with fittings	81626	Knob, slider (white)	for Wave-Range switch
81595	Cabinet rear (black)		81646	Label, warning	on cabinet rear
81593	Cabinet rear (red)		16887	Lamp (2)	19 V, 0.097 A, m. e. s.
64014	Clip, spring (4)	for retaining loud-speaker	83120	Loudspeaker	5 in. dia., permanent magnet
64019	Clip, spring	for retaining Wave-Range knob	81628	Pad, mounting (4)	between chassis and cabinet
81277	Clip, retaining	for mains resistor mounting	82352	Pointer	for tuning scale
77697	Clip	for mains voltage adjustment	82814	Scale	tuning
81750	Clip, retaining (2)	for On-Off/Volume and Tuning control knobs	610081	Screw, PK10A by ½ in., P.R.H.	for retaining back
1871/2	Compound	for coil cores	81618	Strap, metal	across rear of chassis
74664	Core, iron dust	for M & L osc. coil	81752	Switch, S1	Wave-Range
46910	Core, iron dust	for i. f. ts.	81394	Trim, decorative	metal strip on cabinet front
33204	Fuse (F1)	250 mA plain cartridge	59142	Valveholder, B9A (3)	for V2, V3, V4
42849	Grommet (2)	for rod aerial mounting	73705	Valveholder, B9A ceramic	for V1
81956	Knob assembly	for Tuning control			