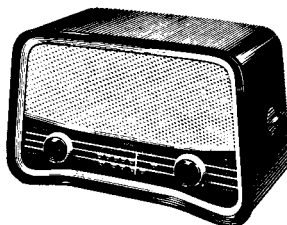


# MURPHY SERVICE MANUAL



## SPECIFICATION

MAINS SUPPLIES:		200-250V a.c., 25-100 c/s 200-250V d.c.
CONSUMPTION:		38 watts average
WAVE-RANGES:	M:	186-568 metres
	L:	1,000-2,000 metres
INTERMEDIATE FREQUENCY:		470 Kc/s
VALVES:		10C14, 10FD12, UCL82, U381
LOUDSPEAKER:	Type:	5 in. dia., permanent magnet
	Impedance:	3 ohms
OVERALL DIMENSIONS:		14 in. wide, 8 $\frac{3}{4}$ in. high, 7 in. deep
WEIGHT:		8 $\frac{1}{2}$ lb.
RELEASED:		June, 1958
PRICE:		£11 6s. 7d. plus P.T.

*Issued by*

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

Telephone: WELWYN GARDEN 3434

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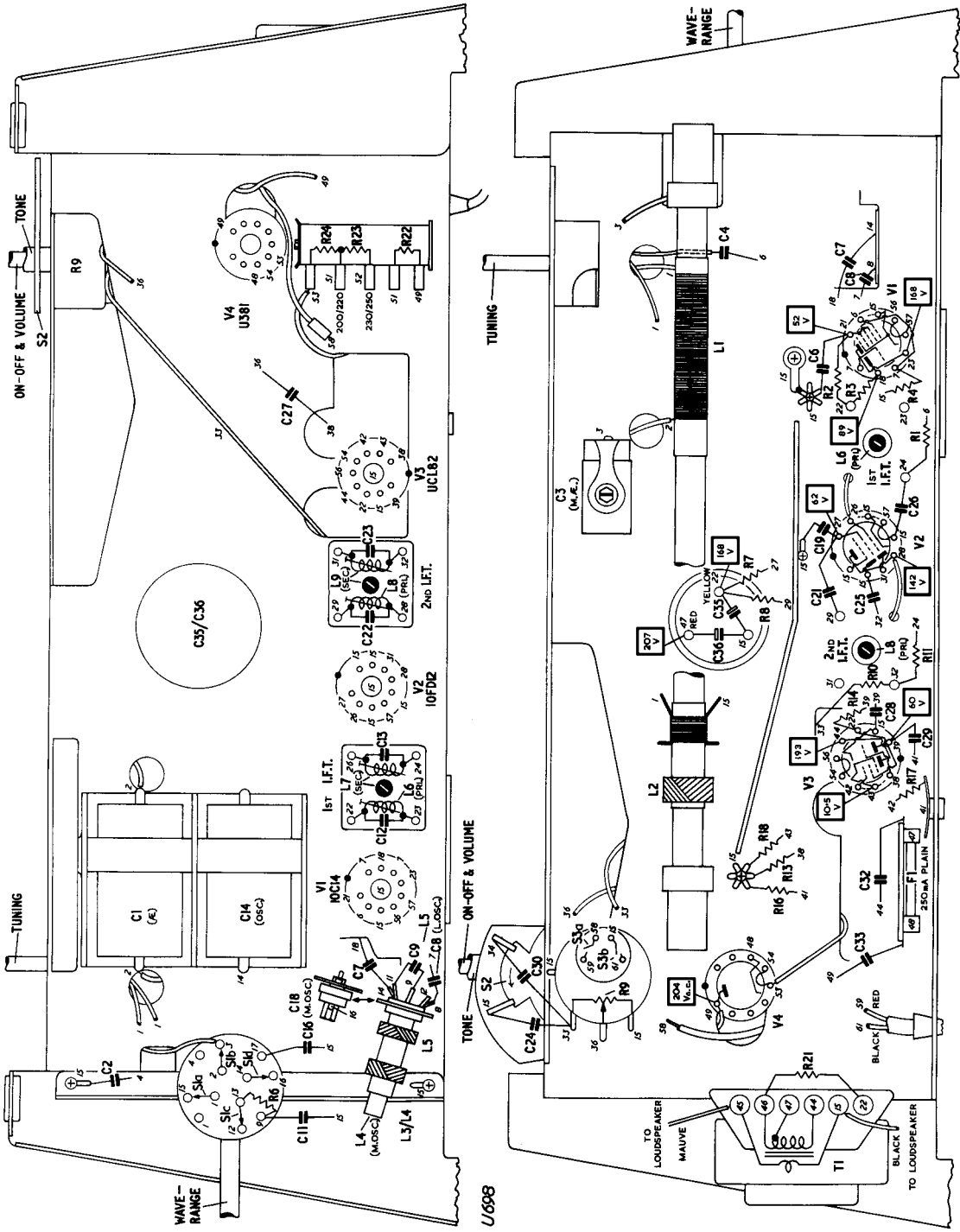


Fig. 1. The layout of the top and the underside of the chassis.

The Wave-Range switch is shown in the M position.

# CIRCUIT ALIGNMENT

- 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 180mW, or approximately 0.7V across the loudspeaker speech coil.
- Trimming tool.** A non-metallic tool must be used for adjusting the coil cores.
- Tuning pointer.** When the chassis is outside the cabinet the left-hand edge of the pointer carrier (looking from the rear) is used as an indicator and must register with 0 on the centimetre scale when the ganged capacitor is at maximum capacitance. When the chassis is inside the cabinet and with the ganged capacitor at maximum capacitance, the middle of the pointer must register with the dots to the right of the 2,000m. and 550m. scale markings.
- 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.
- 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 moulded support should be 1/2 in. for L1 and 7/16 in. for L2. 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	470Kc/s	Via 0.01µF capacitor	V2 grid 1 (pin 2)	0	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.	470Kc/s	As above	V1 grid 1 (pin 2)	0	L7 (sec.) top of can L6 (pri.) bottom of can DO NOT READJUST SEC. CORE
M	Repeat these adjustments until there is no further improvement	600Kc/s (500m.) 1364Kc/s (220m.)	See note 4 above As above	See note 4 above As above	1.9 8.2	L4 (osc.) chassis top L1 (ae.) see note 5 above C18 (osc.) chassis top C3 (ae.) chassis bottom
L		176.5Kc/s (1700m.)	As above	As above	2.7	L5 (osc.) chassis top L2 (ae.) see note 5 above

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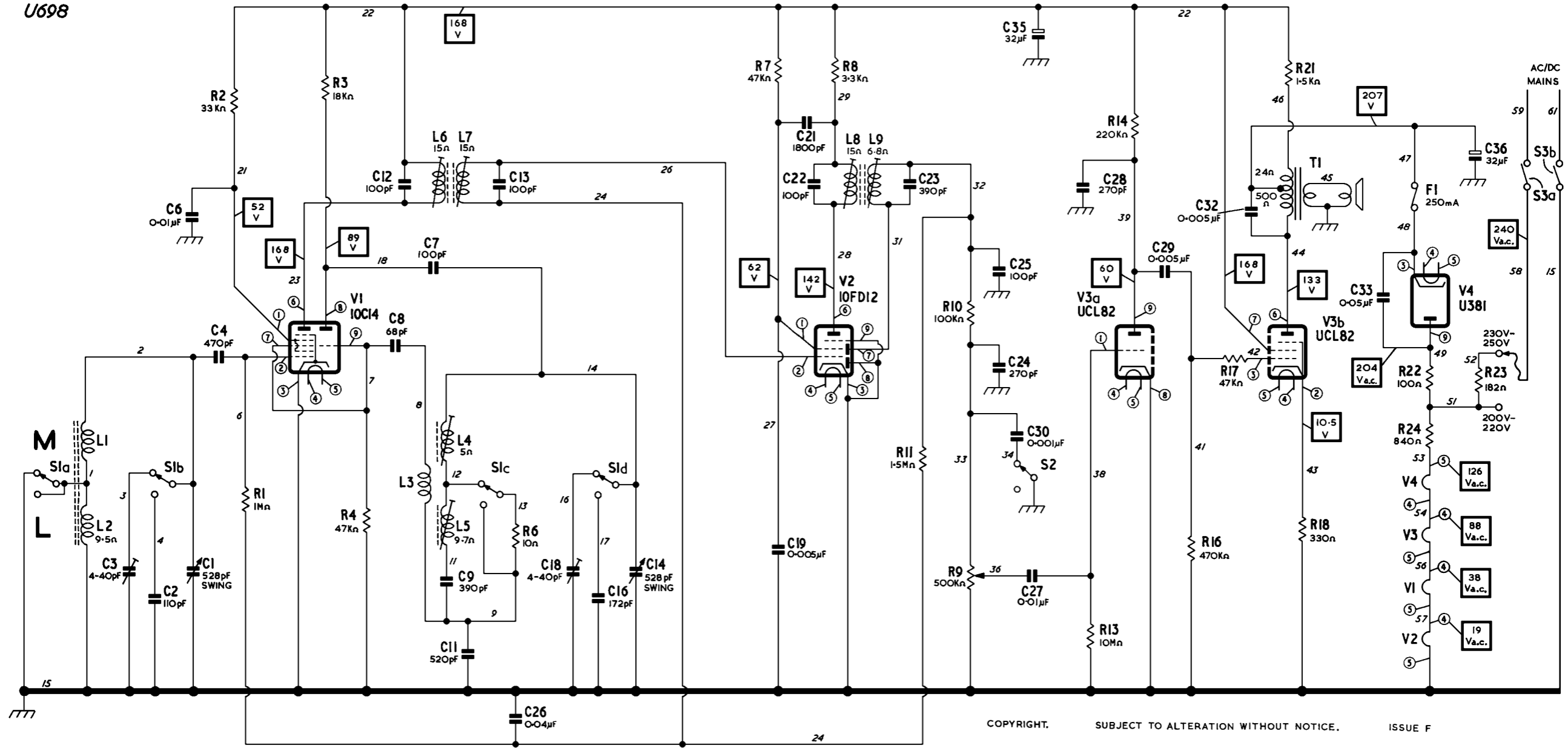


Fig. 2. The circuit diagram.

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

# ALTERNATIVE VALVES

V1 - UCH81                      V4 - UY85  
 V2 - UBF89

## 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	elec.	- electrolytic
p.s.m.	- protected silvered mica	V d.c.	- d.c. voltage rating
tub.	- paper tubular	W	- wattage rating
m.tub.	- metallized paper tubular	2 p.c.	- 2% law
p.f.tub.	- plastic film tubular		

**Volume Control.** This control has a new type of track, in which the resistance between the anti-clockwise stop and the slider at 50% rotation is 2% of the total track resistance

PART NO.	CIRCUIT NO.	VALUE	TOLERANCE AND REMARKS	PART NO.	CIRCUIT NO.	VALUE	TOLERANCE AND REMARKS
60763	C1	528pF	Ganged capacitor, ae. section (with C14)	51560	C32	0.005µF	25%, tub., 750V d.c.
28363	C2	110pF	2%, p.s.m., 350V d.c.	51559	C33	0.05µF	20%, tub., 1,000V d.c.
56322	C3	4-40pF	Trimmer, M ae.	56160	{ C35 C36	{ 32µF 32µF	{ +50% -20%, elec., 275V d.c.
54083	C4	470pF	20%, cer., 500V d.c.	27461	R1	1MΩ	20%, 0.6W
49453	C6	0.01µF	25%, m.tub., 350V d.c.	25517	R2	33KΩ	10%, 0.75W
67505	C7	100pF	10%, cer., 750V d.c.	25413	R3	18KΩ	10%, 0.6W
67503	C8	68pF	10%, cer., 750V d.c.	25573	R4	47KΩ	10%, 0.6W
28311	C9	390pF	1%, p.s.m., 350V d.c.	24165	R6	10Ω	10%, 0.6W
28288	C11	520pF	1%, p.s.m., 350V d.c.	25573	R7	47KΩ	10%, 0.6W
52630	C12	100pF	5%, p.s.m., 350V d.c.	25125	R8	3.3KΩ	10%, 0.6W
52630	C13	100pF	5%, p.s.m., 350V d.c.	69564	R9	500KΩ	Volume control, 2 p.c. (with S3)
60763	C14	528pF	Ganged capacitor, osc. section (with C1)	27269	R10	100KΩ	20%, 0.6W
28403	C16	172pF	1%, p.s.m., 350V d.c.	27493	R11	1.5MΩ	20%, 0.6W
56322	C18	4-40pF	Trimmer, M osc.	27653	R13	10MΩ	20%, 0.6W
57795	C19	0.005µF	25%, m.tub., 250V d.c.	27333	R14	220KΩ	20%, 0.6W
54090	C21	1,800pF	20%, cer., 500V d.c.	27397	R16	470KΩ	20%, 0.6W
52630	C22	100pF	5%, p.s.m., 350V d.c.	27205	R17	47KΩ	20%, 0.6W
66298	C23	390pF	5%, p.f.tub., 350V d.c.	24741	R18	330Ω	10%, 0.6W
54080	C24	270pF	20%, cer., 500V d.c.	25023	R21	1.5KΩ	10%, 1.5W
66169	C25	100pF	20%, cer., 750V d.c.		R22	100Ω	2W
49454	C26	0.04µF	25%, m.tub., 150V d.c.	78280	{ R23 R24	{ 182Ω 840Ω	{ 9.6W } 5%
49447	C27	0.01µF	25%, m.tub., 150V d.c.				
54080	C28	270pF	20%, cer., 500V d.c.				
51551	C29	0.005µF	25%, tub., 500V d.c.				
49450	C30	0.001µF	25%, m.tub., 350V d.c.				
PART NO.	CIRCUIT NO.	RESISTANCE (D.C.)	DESCRIPTION AND REMARKS	PART NO.	CIRCUIT NO.	RESISTANCE (D.C.)	DESCRIPTION AND REMARKS
76599	L1	-	M ae., tuned	67694	{ L6 L7	{ 15Ω 15Ω	{ Pri. Sec. } 1st i.f.t.
76602	L2	9.5Ω	L ae., tuned		{ L8 L9	{ 15Ω 6.8Ω	{ Pri. Sec. } 2nd i.f.t.
62586	{ L3 L4 L5	{ - 5Ω 9.7Ω	{ M & L coupling & tuned L tuned } osc.	72971		500+24Ω	Pri. Sec. } o.t.
				77519	T1	-	

## 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
63550 60486	Aerial rod Anchor	less coils and supports for mains lead	49883	Grommet (4)	on brackets (77606 & 77607) for chassis mounting
79154	Back for cabinet	with heat deflector, less Polythene plugs (69141)	68709	Guide rail	mounting for cursor
78450	Baffle	with chassis locating dowels	77723 75099	Knob Knob, inner (2)	for Wave-Range switch for Tuning and Volume controls
60761 77587	Bearing Bracket, locating	for tuning spindle for Tone control switch	75105	Knob, outer (2)	for Tuning and Tone controls
77631 52592	Bracket, mounting Bracket, mounting (l.h.)	for Wave-Range switch on cabinet rear, near Wave-Range switch	68172	Loudspeaker	5 in. dia., permanent magnet
52591	Bracket, mounting (r.h.)	on cabinet rear, near fuse	77594	Packing (4)	for front of loud- speaker
77606	Bracket, mounting (l.h.)	for chassis support, near mains dropper	55695	Pin (2)	for tuning drive pulleys
77607	Bracket, mounting (r.h.)	for chassis support, under Wave-Range switch	69141	Plug, Polythene (2)	insulators for eyelets in cabinet back
63579	Bracket, support- ing	for osc. coil	70489	Pulley (2)	for tuning drive
79985 48506	Cabinet Channel, rubber (4)	with fittings for tuning scale	74817	Reflector	for tuning scale
42580 63877 74323	Circlip Circlip Circlip (2)	for Tuning spindle for Tone control for inner knobs, Tuning and Volume	77524 103287	Scale Screw, OBA, 1/4 in. (2)	tuning for fastening chassis in cabinet
74325	Circlip (2)	for outer knobs, Tuning and Tone	103877	Screw, PK8Y, 1/4 in. Ph. Rd. Hd. (4)	for fastening cabinet back
78372 77612 43009 77697	Clamp (5) Clamp (2) Clamp Clip	for retaining baffle for retaining scale for C35/C36 for mains voltage ad- justment	103838	Screw, PK10Y, 1/4 in., Ph. Csk. Hd. (4)	for fastening brackets (52591 & 52592) to cabinet
52292 14770	Clip, retaining Collar	for osc. coil inside ganged capaci- tor mounting grommets	78146 47478 22547	Spindle Spring Studding	tuning for tuning drive cord threaded rod for mains resistor mounting for aerial rod
1871/2 46910	Compound Core, iron dust (4)	for coil cores for L6, L7, L8, L9	63560	Support, rubber (2)	Wave-Range Tone control
46913	Core, iron dust (2)	for L4, L5	78247 77630	Switch Switch	
3962/1 77616 77633	Cord, 30 in. Coupling, sleeve Cursor and carrier	for tuning drive for outer Tuning Knob for tuning scale	79961	Trim	ornamental strip at top of tuning scale
60873	Drum, tuning	for ganged capacitor	59142	Valveholder, B9A (4)	
1829/31 33204 62951	Fabric, silk Fuse (F1) Fuseholder	for loudspeaker baffle 250mA, plain with bracket	58567	Washer (2)	Asbestos-Bakelite for mains resistor
78749 56622	Grille Grommet (3)	for front of cabinet for ganged capacitor mounting	49910	Washer (2)	for chassis fixing screws
			47955	Washer (4)	for screws fastening cabinet back
			42035 58654	Washer, centring Washer, felt (2)	for mains resistor behind outer Tuning and Tone control knobs
			58556	Washer, felt	behind Wave-Range knob

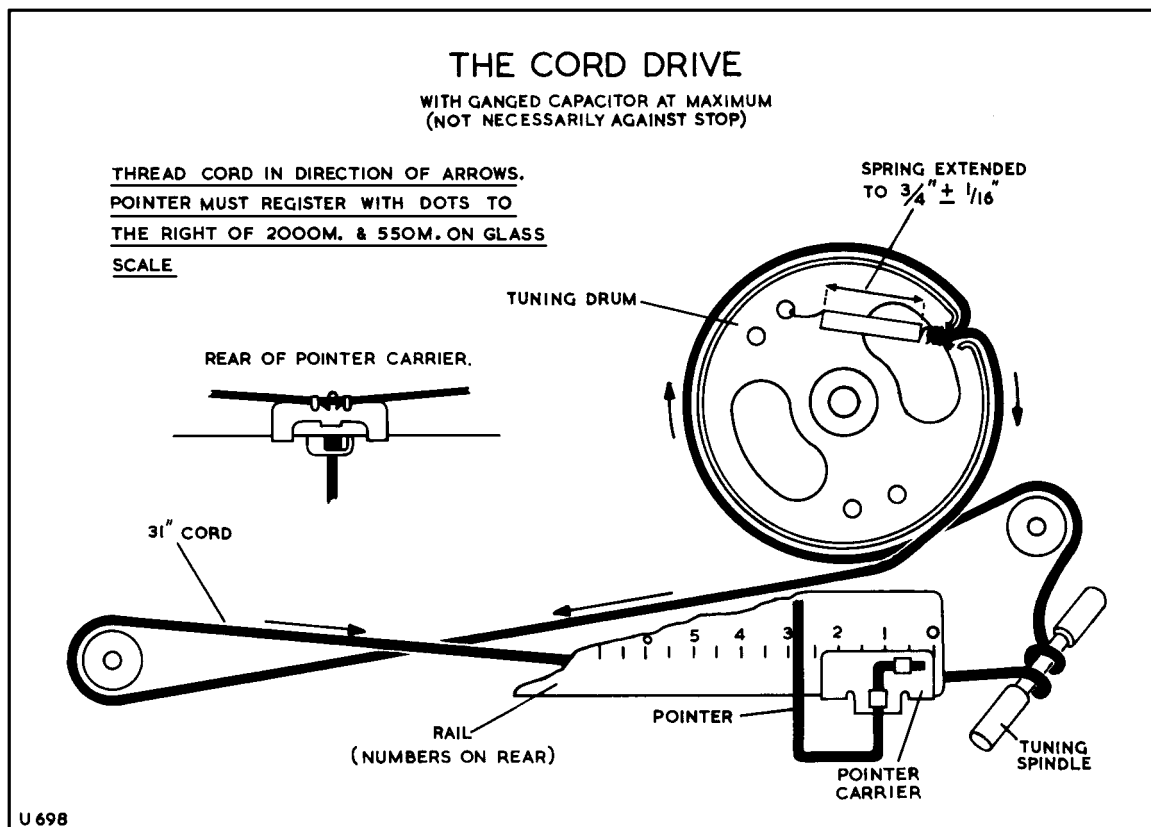


Fig. 3.

## MODIFICATION

**Hum.** In early receivers, C28 was not fitted. Also, a 220KΩ resistor (20%, 0.6W, Part No. 27333) was connected between C27 and the

junction R13/V3a grid. The change was made to reduce hum which was noticeable on some receivers.