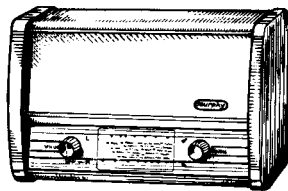


# MURPHY SERVICE MANUAL



## SPECIFICATION

MAINS SUPPLIES:		190-250 volts a.c., 25-100 c/s, and 190-250 volts d.c.
CONSUMPTION:		41 watts average
WAVE RANGES:	M:	186-568 metres
	L:	1,000-2,000 metres
INTERMEDIATE FREQUENCY:		470 Kc/s
VALVES:		UCH42, 10F9, 10LD3, UL41, UY41
LOUDSPEAKER:	Type:	5 in. dia., permanent magnet
	Impedance:	3 ohms
OVERALL DIMENSIONS:		14 in. wide, 9 $\frac{1}{4}$ in. high, 6 $\frac{1}{4}$ in. deep
WEIGHT:		8 lb.
RELEASED:		September, 1957
PRICE:		£12 1s. 9d. plus P.T.

*Issued by*

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

Telephone: WELWYN GARDEN 3434

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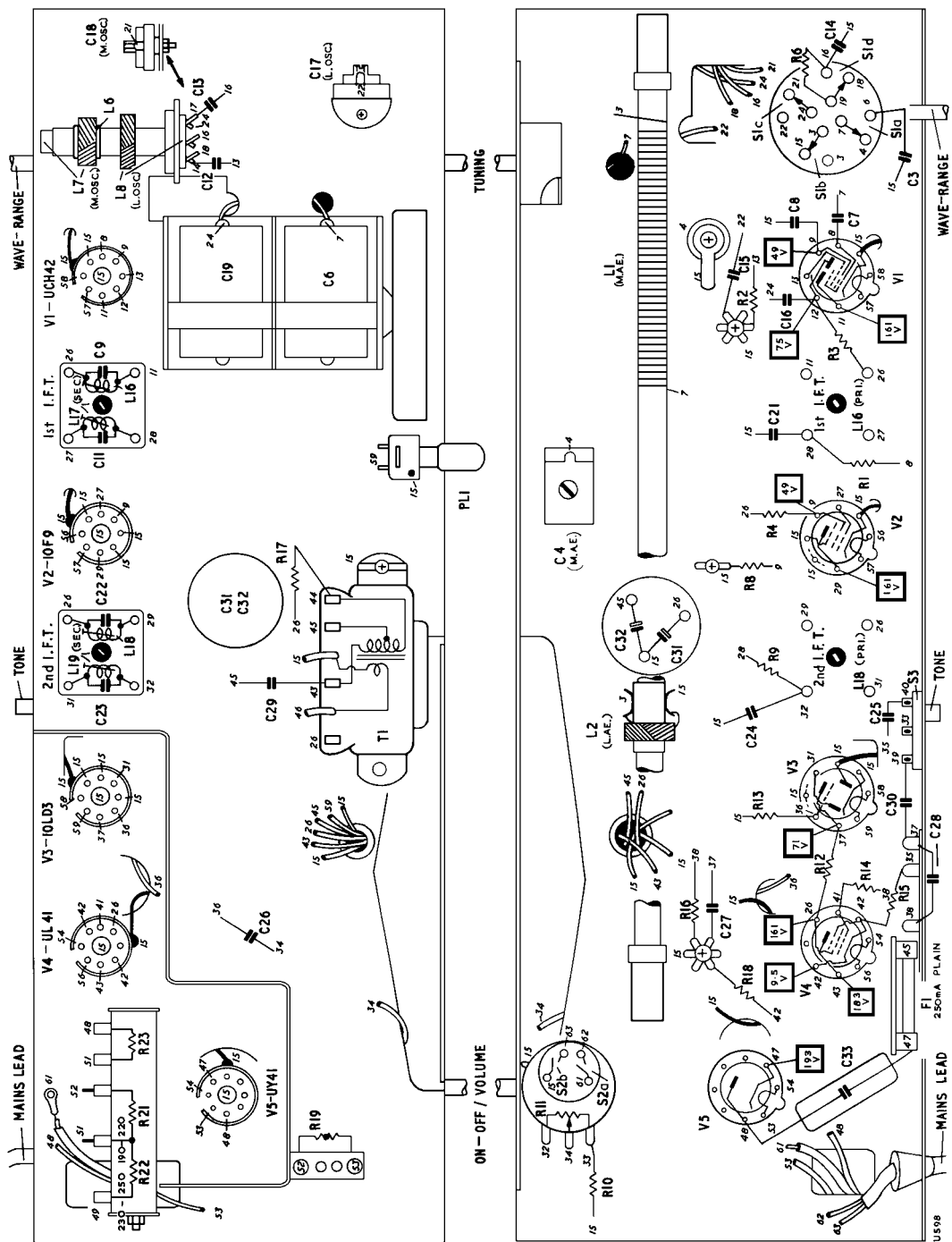


Fig. 1. The layout of the top and the underside of the chassis.

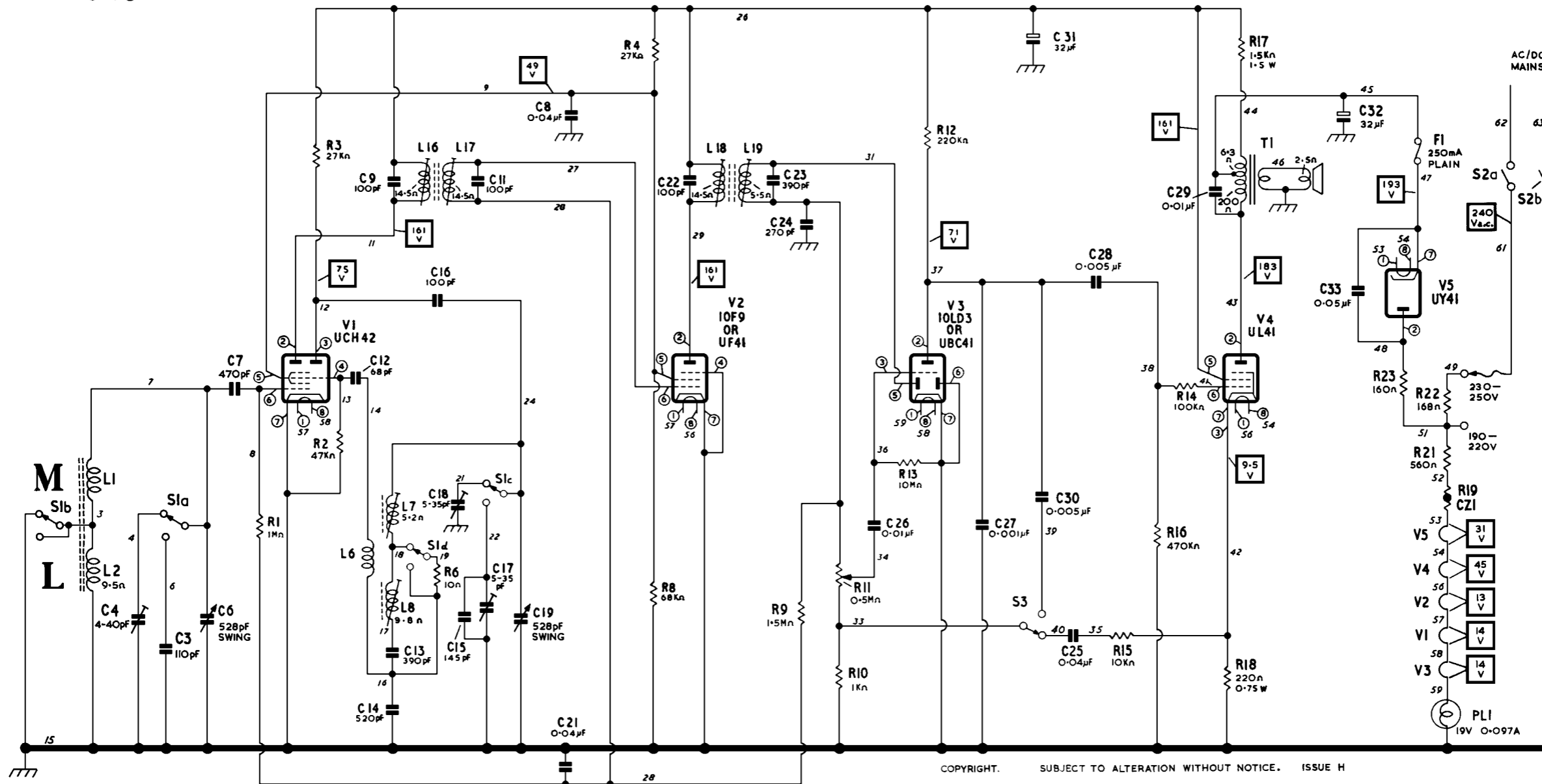
## CIRCUIT ALIGNMENT

- 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 180 mW, or approximately 0.7V across the loud-speaker 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 0.7 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 in 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 adjustments after completing the L adjustments. When the coils are correctly fitted and connected, the distance between the coil formers and the adjacent plastic supports for the rod should be approximately  $\frac{1}{4}$  in. for L1 and  $\frac{1}{2}$  in. for L2. Finally secure the coil formers to the 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 6)	0.7	L19 (sec.) top of can L18 (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 6)	0.7	L17 (sec.) top of can L16 (pri.) bottom of can DO NOT READJUST SEC. CORE
M	Repeat these adjustments until there is no further improvement	600Kc/s (500m.)	See note 4 above	See note 4 above	2.55	L7 (osc.) chassis top L1 (ae.) see note 5 above
L	As above	1364Kc/s (220m.)	As above	As above	8.9	C18 (osc.) chassis top C4 (ae.) chassis bottom
		176.5Kc/s (1700m.)	As above	As above	3.4	L8 (osc.) chassis top L2 (ae.) see note 5 above
		300Kc/s (1000m.)	As above	As above	9.7	C17 (osc.) chassis top

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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.

## CHASSIS SUPPORTS

Should the chassis supports be removed for any reason, it is essential to replace the insulating washers at the front on reassembly. The bakelite washer (47935) is fitted under the screw head and the polythene washer (60820) between the chassis and the chassis

support, with the shaped bush uppermost and fitting into the hole in the chassis.

This is to avoid forming a closed loop adjacent to the aerial circuit which would result in greatly reduced sensitivity.

## ALTERNATIVE VALVES

V2 - UF41

V3 - UBC41

## PARTS LIST (Electrical Components)

Replacement capacitors must have a negative temperature coefficient where this is specifically indicated. 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	v d.c.	- d.c. voltage rating
tub.	- paper tubular	w	- wattage rating
m.tub.	- metallized paper tubular	log.	- logarithmic law
elec.	- electrolytic	w.w.	- wire wound

PART NO.	CIRCUIT NO.	VALUE	TOLERANCE AND REMARKS	PART NO.	CIRCUIT NO.	VALUE	TOLERANCE AND REMARKS
28363	C3	110PF	2%, p.s.m., 350V d.c.	49454	C25	0.04µF	25%, m.tub., 150V d.c.
56322	C4	5-35PF	Trimmer, M ae.	49447	C26	0.01µF	25%, m.tub., 150V d.c.
60763	C6	528PF	Ganged capacitor, ae. swing section (with C19)	49450	C27	0.001µF	25%, m.tub., 350V d.c.
54083	C7	470PF	20%, cer., 500V d.c.	51551	C28	0.005µF	25%, tub., 500V d.c.
49454	C8	0.04µF	25%, m.tub., 150V d.c.	51554	C29	0.01µF	25%, tub., 750V d.c.
52630	C9	100PF	5%, p.s.m., 350V d.c.	57792	C30	0.005µF	25%, m.tub., 350V d.c.
52630	C11	100PF	5%, p.s.m., 350V d.c.	56160	C31	32µF	+50% - 20%, elec., 275V d.c.
28172	C12	68PF	5%, p.s.m., 350V d.c.	C32	32µF		
28311	C13	390PF	1%, p.s.m., 350V d.c.	C33	0.05µF	20%, tub., 1,000V d.c.	
28288	C14	520PF	1%, p.s.m., 250V d.c.	27461	R1	1MΩ	20%, 0.6W
28355	C15	145PF	2%, p.s.m., 350V d.c.	25573	R2	47KΩ	10%, 0.6W
28156	C16	100PF	5%, p.s.m., 350V d.c.	25477	R3	27KΩ	10%, 0.6W
56322	C17	5-35PF	Trimmer, L osc.	25477	R4	27KΩ	10%, 0.6W
56323	C18	5-35PF	Trimmer, M osc.	24165	R6	10Ω	10%, 0.6W
60763	C19	528PF	Ganged capacitor, osc. swing section (with C8)	27237	R8	68KΩ	20%, 0.6W
49454	C21	0.04µF	25%, m.tub., 150V d.c.	27493	R9	1.5MΩ	20%, 0.6W
52630	C22	100PF	5%, p.s.m., 350V d.c.	26885	R10	1KΩ	20%, 0.6W
66298	C23	390PF	5%, p.f.tub., 350V d.c.	68566	R11	500KΩ	Volume control, log. (with S2)
54080	C24	270PF	20%, cer., 500V d.c.	27333	R12	220KΩ	20%, 0.6W

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PART NO.	CIRCUIT NO.	VALUE	TOLERANCE AND REMARKS	PART NO.	CIRCUIT NO.	VALUE	TOLERANCE AND REMARKS
27653	R13	10M $\Omega$	20%, 0.6W	50612	R19	—	Current Sensitive, type CZ1
27269	R14	100K $\Omega$	20%, 0.6W	68751	{ R21 R22 R23	560 $\Omega$ 168 $\Omega$ 160 $\Omega$	6W 8W 3.6W } 5%, w.w.
27077	R15	10K $\Omega$	20%, 0.6W				
27397	R16	470K $\Omega$	20%, 0.6W				
25023	R17	1.5K $\Omega$	10%, 1.5W				
24685	R18	220 $\Omega$	10%, 0.75W				

PART NO.	CIRCUIT NO.	RESISTANCE (D.C.)	REMARKS	PART NO.	CIRCUIT NO.	RESISTANCE (D.C.)	REMARKS
76599	L1	—	M ae., tuned	72971	{ L18 L19	14.5 $\Omega$ 5.5 $\Omega$	Pri. } 2nd i.f.t. Sec. }
76602	L2	9.5 $\Omega$	L ae., tuned				
62586	L6	—	M & L coupling	69764	{ T1	200+8.3 $\Omega$	Pri. } o.t. Sec. }
	L7	5.2 $\Omega$	M tuned				
	L8	9.8 $\Omega$	L tuned				
67694	L16	14.5 $\Omega$	Pri. } 1st i.f.t.				
	L17	14.5 $\Omega$	Sec. }				

## 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
76310 60486	Aerial rod Anchor	complete with coils for mains lead	77312	Knob (2)	for Volume and Tuning controls
76883 77379 60761 76303	Back for cabinet Badge, Murphy Bearing Bush, bearing (2)	with heat deflector complete for tuning spindle inside washer (76304)	69397	Knob, lever	for Wave-Range switch
77365	Cabinet	with Murphy badge less loudspeaker	16887	Lamp	19V, 0.097A
52539 42580 43009 52292 14770	Can (2) Circlip Clamp Clip, retaining Collar (3)	for i.f. transformers for tuning spindle for C31/C32 for osc. coil inside ganged capacitor mounting grommets	56453	Lampholder	5 in. dia.
1871/2 3962/1	Compound Cord	for iron dust cores for tuning drive	68161	Loudspeaker	
46910 46913	Core, iron dust (4) Core, iron dust (2)	for i.f. transformers for L7 and L8	62416	Nut, U shaped spring (2)	for fastening cabinet back
60873	Drum, tuning	for ganged capacitor	55695	Pin (2)	for tuning drive pulleys
1829/24 74608 33204 62951	Fabric Foot (4) Fuse (F1) Fuseholder	for cabinet front for bottom of cabinet 250mA, plain with bracket	69141	Plug, Polythene (2)	insulators for eyelets in cabinet back
56622	Grommet (3)	for ganged capacitor mounting	76306	Pointer	with carrier
			70489	Pulley (2)	for tuning drive
			68709	Rail, guide	for pointer
			67988	Reflector	for tuning scale
			71513	Retainer (4)	for i.f.t. cores
			76293	Scale, tuning	
			69532	Screen, heat de- flecting	on chassis behind loud- speaker
			103508	Screw, 4BA, 1/2 in. (3)	for ganged capacitor mounting
			103504	Screw, 4BA, 1/4 in.	for tuning drum
			10419	Screw, grub, 2BA, 3/16 in. (3)	for control knobs
			454761	Screw, Wood, No.8 1 1/4 in. (2)	for fastening cabinet back
			374982	Screw, 4BA, 1/2 in. (4)	for fastening chassis in cabinet

PART NO.	TITLE	DESCRIPTION AND REMARKS	PART NO.	TITLE	DESCRIPTION AND REMARKS
60762	Spindle, tuning	for tuning drive cord threaded rod for mains resistor	14943	Washer (2)	for screws fastening cabinet back for locating spindles through scale
47478	Spring		76304	Washer, centering (2)	
22547	Studding		42035	Washer, centering	
63560	Support, rubber (2)	for aerial rod	58644	Washer, felt (2)	for mains resistor
60779	Switch	Wave-Range Tone	58567	Washer, insulating (2)	for control knobs
76680	Switch		60820	Washer, insulating (2)	
75370	Trim, 26 in.	ornamental strip, top and bottom of baffle board	47935	Washer, insulating (2)	with shaped bush for chassis supports plain for chassis supports
51451	Valveholder (5)	B8A	16649	Washer, shake-proof, 3/8 in.	for Volume control
58554	Washer (3)	for ganged capacitor mounting grommets	490023	Washer, spring, 4BA	for fastening mains resistor

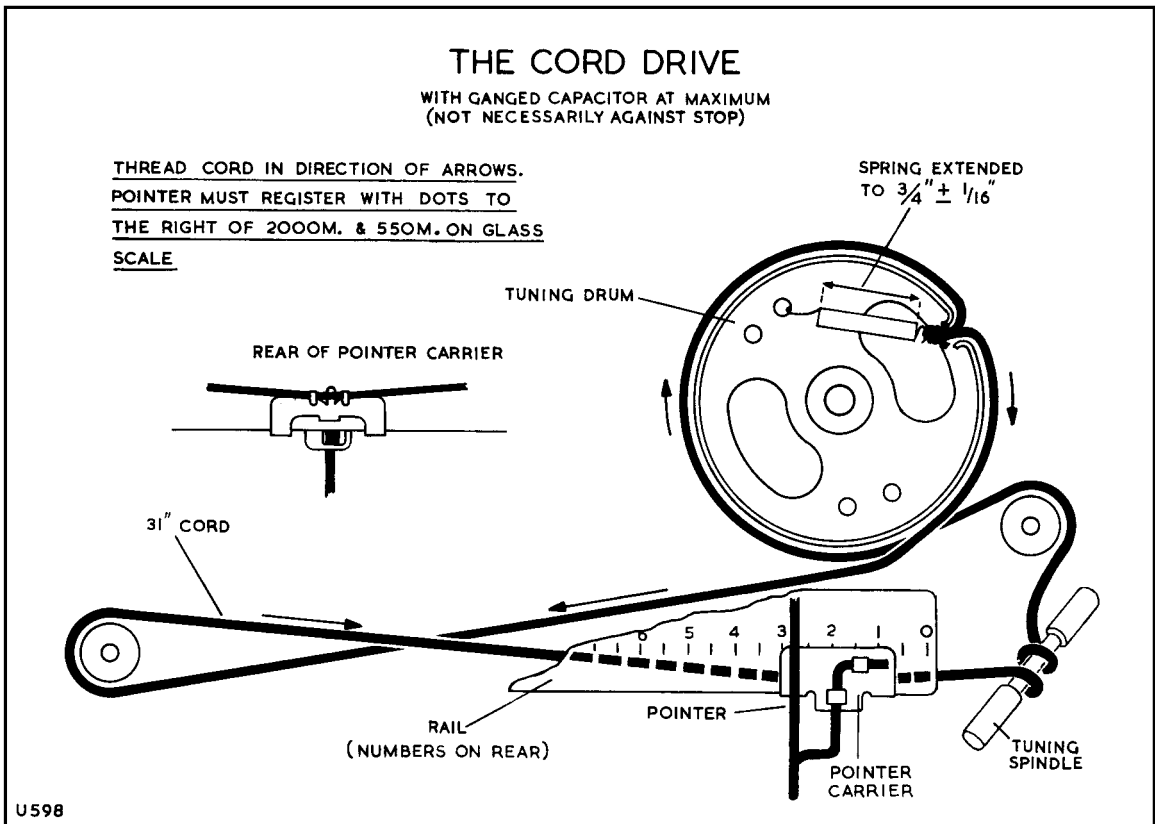


Fig. 3.