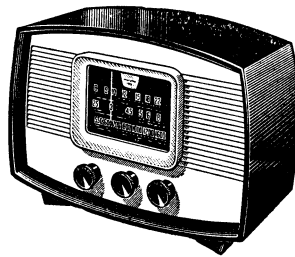


AI92T

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# MURPHY SERVICE INSTRUCTIONS



## SPECIFICATION

MAINS SUPPLY:	190-250 volts, a.c., 40-100 c/s
CONSUMPTION:	38 watts (approx.)
WAVE BANDS:	Long: 2050-967 metres Medium: 576-184 metres Short: 187-67 metres
INTERMEDIATE FREQUENCY:	470 Kc/s
VALVES:	Mazda 10C1, 10F9, 10LD11, 10P14, U404
SCALE LAMP:	6.5 volts, 0.3 amp. (M.E.S.)
SPEECH COIL IMPEDANCE:	3 ohms
CABINET DIMENSIONS:	14½ in. wide, 10¼ in. high, 7½ in. deep
WEIGHT:	12 lb.
RELEASED:	May, 1953

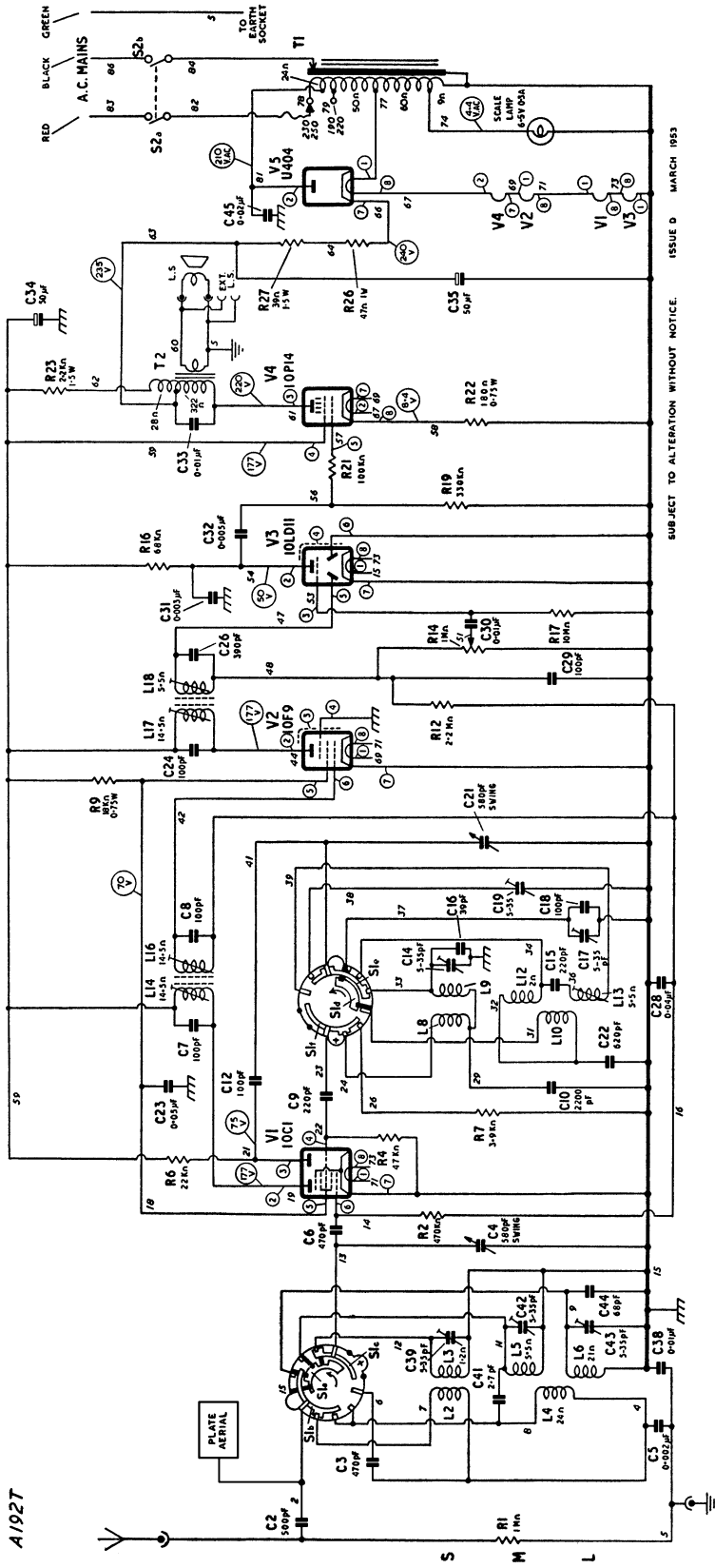
*Issued by*

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

**PHONE: WELWYN GARDEN 800**

*May 1953*

A1927



The switch wafers are drawn as seen from the rear of the receiver, and the lugs marked with a cross are the nearer to the chassis. The black contacts and inner rotors are on the hidden sides of the wafers. Blank contacts and anchoring tags are shown by a spot.

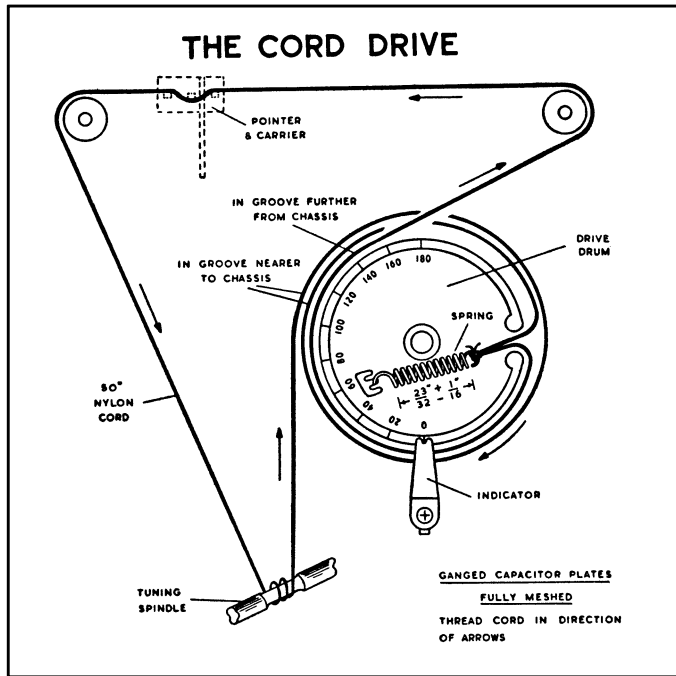
The waveband switch is shown in the S position; rotate anti-clockwise for M and L.

When measuring the voltages, the receiver was switched to the

M band, with no signal input. A 20,000  $\Omega/V$  meter was used and the readings are given in the large circles on the diagram.

The valve pin numbers are shown in the small circles. Component terminals and connecting leads are identified by test point numbers which correspond with those appearing on the chassis drawings.

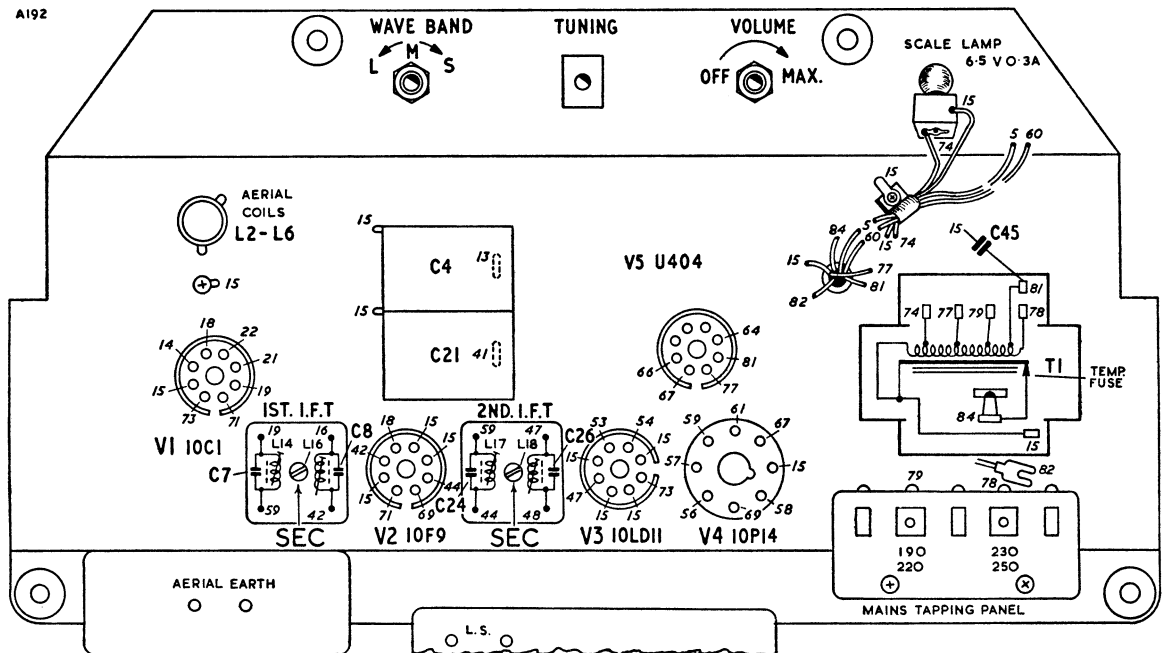
Coil resistances are omitted where the values are less than one ohm.



## PARTS LIST ABBREVIATIONS

- cer. — ceramic
- elec. — electrolytic
- i.s.tub. — insulated sealed tubular (metal cased)
- m.tub. — metallized paper tubular
- p.s.m. — protected silvered mica
- tub. — paper tubular
- V a.c. — a.c. voltage working
- V d.c. — d.c. voltage working
- w.w. — wire wound
- W — wattage rating

C	7	8	4 21 4	26	45	C
L	2-6 14	16		17 18		L
MISC	V1	V2	V3	V5	V4	T1



*The layout of the top of the chassis*

## PARTS LIST (Electrical Components)

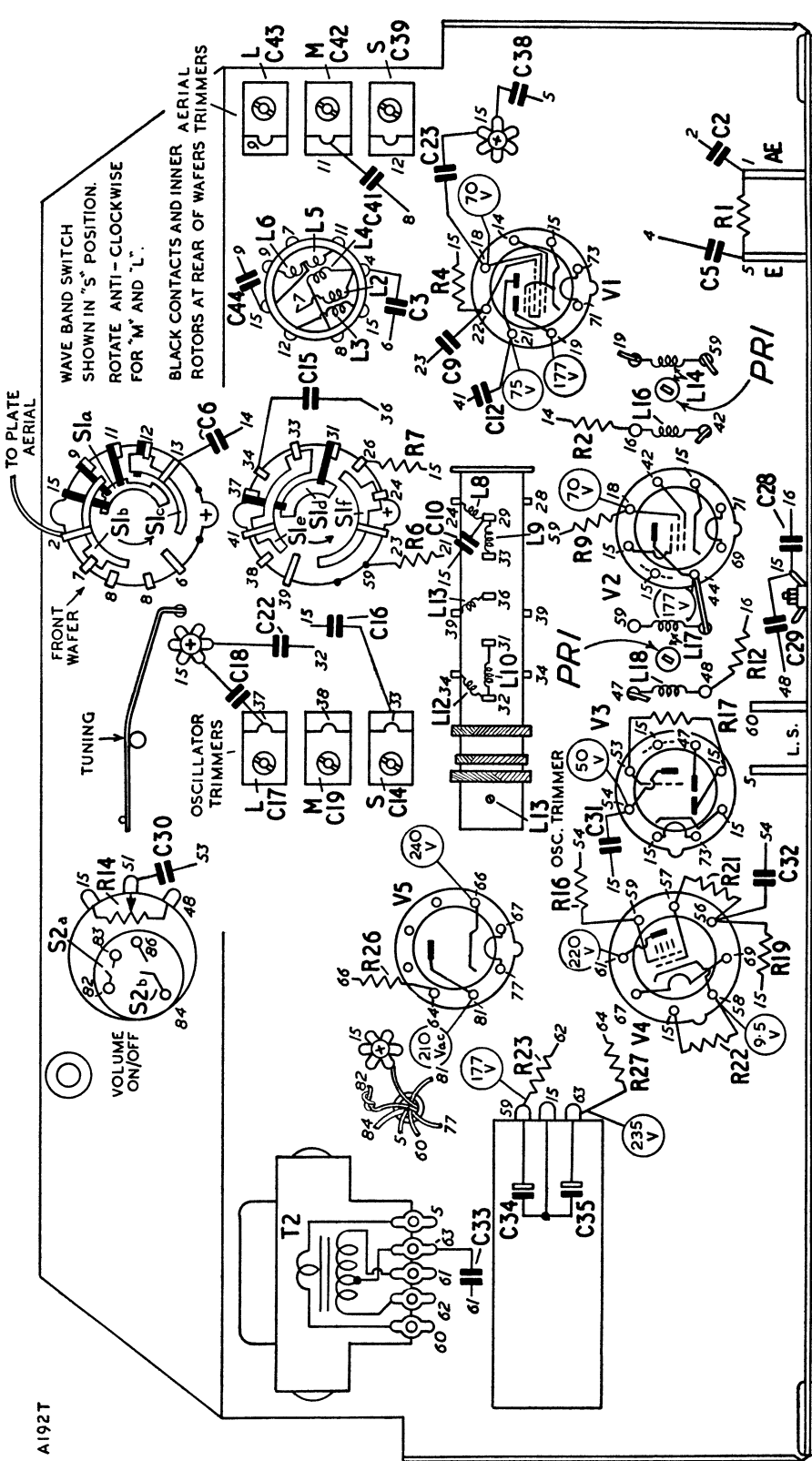
PART NO.	CIRCUIT NO.	VALUE	TOLERANCE AND REMARKS	PART NO.	CIRCUIT NO.	VALUE	TOLERANCE AND REMARKS
57773	C2	500 pF	25%, m.tub., 300V a.c.	27461	R1	1 MΩ	20%, 0.6W
28243	C3	470 pF	2%, p.s.m., 350V d.c.	27397	R2	470 KΩ	20%, 0.6W
55079	C4	580 pF swing	gang capacitor, ae. section	27205	R4	47 KΩ	20%, 0.6W
57774	C5	0.002 μF	20%, m.tub., 300V a.c.	25445	R6	22 KΩ	10%, 0.6W
54083	C6	470 pF	20%, cer., 500V d.c.	25157	R7	3.9 KΩ	10%, 0.6W
52630	C7	100 pF	5%, p.s.m., 350V d.c.	25421	R9	18 KΩ	10%, 0.75W
52630	C8	100 pF	5%, p.s.m., 350V d.c.	27525	R12	2.2 MΩ	20%, 0.6W
28267	C9	220 pF	20%, p.s.m., 350V d.c.	52776	R14	1 MΩ	v/c with switch
23656	C10	2200 pF	10%, p.s.m., 350V d.c.	27237	R16	68 KΩ	20%, 0.6W
23607	C12	100 pF	10%, p.s.m., 500V d.c.	27653	R17	10 MΩ	20%, 0.6W
37480	C14	5-35 pF	trimmer, S osc.	27365	R19	330 KΩ	20%, 0.6W
28223	C15	220 pF	2%, p.s.m., 350V d.c.	27269	R21	100 KΩ	20%, 0.6W
23660	C16	39 pF	10%, p.s.m., 350V d.c.	24653	R22	180 Ω	10%, 0.75W
37480	C17	5-35 pF	trimmer, L osc.	25087	R23	2.2 KΩ	10%, 1W
23607	C18	100 pF	10%, p.s.m., 350V d.c.	40460	R26	47 Ω	20%, 1W, w.w.
37480	C19	5-35 pF	trimmer, M osc.	24415	R27	39 Ω	10%, 1.5W
55079	C21	580 pF swing	gang capacitor, osc. section				
28241	C22	620 pF	1%, p.s.m., 350V d.c.				
41403	C23	0.05 μF	20%, tub., 350V d.c.				
52630	C24	100 pF	5%, p.s.m., 350V d.c.				
52633	C26	390 pF	5%, p.s.m., 350V d.c.				
49454	C28	0.04 μF	25%, m.tub., 150V d.c.				
54070	C29	100 pF	20%, cer., 500V d.c.				
49447	C30	0.01 μF	25%, m.tub., 150V d.c.				
49448	C31	0.003 μF	25%, m.tub., 350 V d.c.				
53062	C32	0.005 μF	25%, i.s.tub., 500V d.c.				
41419	C33	0.01 μF	20%, tub., 1000V d.c.				
56152	{ C34	{ 50 μF	{ +50 -20%				
	{ C35	{ 50 μF	{ elec., 275V d.c.				
51766	C38	0.01 μF	20%, i.s.tub., 275V a.c.				
37480	C39	5-35 pF	trimmer, S ae.				
52143	C41	2.7 pF	20%, cer., 350V d.c.				
37480	C42	5-35 pF	trimmer, M ae.				
37480	C43	5-35 pF	trimmer, L ae.				
23606	C44	68 pF	10%, p.s.m., 350V d.c.				
41423	C45	0.02 μF	20%, tub., 750V d.c.				
PART NO.	CIRCUIT NO.	RESISTANCE (D.C.)	REMARKS				
				60380	{ L2	{ —	} aerial coil
					{ L3	{ 1.3 Ω	
					{ L4	{ 24 Ω	
					{ L5	{ 5.5 Ω	
					{ L6	{ 21 Ω	
					{ L8	{ —	
				60381	{ L9	{ —	} oscillator coil
					{ L10	{ —	
					{ L11	{ 2 Ω	
					{ L12	{ 3.5 Ω	
				58116	{ L14	{ 14.5 Ω	} Pri. sec.
					{ L16	{ 14.5 Ω	
					{ L17	{ 14.5 Ω	
				58117	{ L18	{ 5.5 Ω	} Pri. sec.
				60158	T1	143 Ω Total	
				60157	T2	350 Ω	} mains transformer
						—	
							} Pri. sec.

## PARTS LIST (Mechanical Components)

PART NO.	DESCRIPTION	REMARKS	PART NO.	DESCRIPTION	REMARKS
60378	Back	for cabinet	56453	Lampholder	
57424	Bracket	for lampholder	51813	Loudspeaker	5 in. dia., p.m.
57483	Cabinet		53819	Panel, mains tapping	
48506	Channel, rubber (4)	for scale fixing	60164	Plate, aerial	
53019	Clamp	for C34, C35, C37	37974	Plug	for aerial
55897	Clamp	for oscillator coil	37975	Plug	for earth
50062	Clamp	for aerial coil	57932	Pointer and carrier	
57315	Clamping piece	for L1	60379	Scale, tuning	
2033/5	Cord, for drive	50 in. length (127 cms.)	103267	Screw (2)	for chassis fixing
53774	Drive drum	for cord drive	19642	Screw, grub	for drive drum
57484	Escutcheon		10413	Screw, grub (3)	for control knobs
57422	Guide rail	for pointer	57419	Spindle, tuning	
57418	Indicator	for cord drive	19460	Spring	for cord drive
58715	Knob	for On/Off, Volume Control	51171	Spring	for tuning spindle
53035	Knob	for Tuning Control	57571	Switch	wave band
57496	Knob	for Wave Band Switch	40134	Tag (5)	for mains tapping panel
16882	Lamp	6.5V, 0.3A	40135	Terminal, spade	for mains adjustment
			51451	Valve holder, B8A (4)	
			5687	Valve holder, I.O.	
			34588	Washer, felt (3)	for control knobs
			49910	Washer, cup (2)	for chassis fixing

C	33 35 34	17 19 14	18	22	10	6	15	9	41	23	2	38	43	C
L			12	18	10	17	13	9	8	16	3	14	2	L
R	23 27	22	26	16	14	17	12	9	7	2	4			R
MISC	T2		S2b	S2a	V5	V4	S1b	S1a	S1e	V2	S1c	S1d	S1f	VI

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The layout of the underside of the chassis

# CIRCUIT ALIGNMENT

**Output reading.** Connect an output meter to the loudspeaker speech coil. Turn the volume control to maximum output. Make all adjustments for maximum output. Adjust the signal generator attenuator so that the output does not exceed 180mW (0.7V).

**Drive drum setting.** Check that the ganged capacitor plates are fully meshed (i.e. maximum capacitance) when 0° on the drive drum registers with the "V" on the indicator.

**Tuning pointer adjustment.** The pointer should register with the spots at the left of the tuning scale when the ganged capacitor plates are fully meshed.

**Replacement s.w. coils.** The inductance of the tuned windings of replacement S band aerial and oscillator coils may be adjusted after fitting as follows. Refer to the alignment table and where it states "No Adjustment", adjust the spacing of the end turns of the S band aerial and oscillator coils. Readjust the trimmers at the h.f. end of the wave band. Make final adjustments to the coils and then seal the windings with wax.

**Long wave oscillator coil.** When the trimmer (copper disc) is at right angles to the axis of the coil former, the coil inductance is at a minimum, and *vice versa*.

# CIRCUIT ALIGNMENT TABLE

*Note: On all wave bands, the local oscillator frequency is higher than the signal frequency.*

CIRCUIT	NOTES	SIG. GEN. FREQUENCY	SIG. GEN. TERMINATION	CONNECT SIG. GEN. TO	DRIVE DRUM SETTING	ADJUSTMENTS
2nd i.f.t.	Unscrew sec. core (top of can) before starting adjustments	470 Kc/s	Via 0.01 µF capacitor	V2 signal grid (pin 6)	0° M Band	L17 (pri.) under chassis L18 (sec.) top of can DO NOT RE-ADJUST PRI. CORE
1st i.f.t.	As above	As above	As above	V1 signal grid (pin 6)	As above	L14 (pri.) under chassis L16 (sec.) top of can DO NOT RE-ADJUST PRI. CORE
L	Repeat these adjustments until there is no further improvement	176.5 Kc/s (1700 m.) 300 Kc/s (1000 m.)	Dummy aerial As above	Aerial socket As above	62° 168°	L osc. coil (L13) L osc. trimmer (C17) L ac. trimmer (C43)
M		1363.6 Kc/s (220 m.) 600 Kc/s (500 m.)	As above As above	As above As above	157° 37°—39°	M osc. trimmer (C19) M ac. trimmer (C42) No adjustment
S	Set osc. trimmer to lower capacitance peak	3.75 Mc/s (80 m.) 1.67 Mc/s (179.6 m.)	As above As above	As above As above	152° 12°—16°	S osc. trimmer (C14) S ac. trimmer (C39) No adjustment