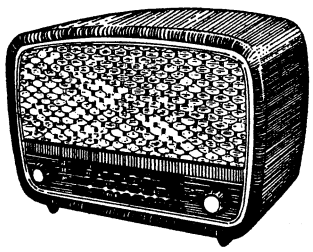
©2018 www.murphy-radio.co.uk

MURPHY SERVICE INSTRUCTIONS



SPECIFICATION

MAINS SUPPLIES:	TU298/220V:	190–250 volts a.c., 25–100 c/s and 190–250 volts d.c.
	TU298/110V:	110–127 volts a.c., 25–100 c/s and 110–127 volts d.c.
CONSUMPTION:	TU298/220V:	38 watts average
	TU298/110V:	31 watts average
WAVE-BANDS:	M:	1605–528 Kc/s (187–568 m.)
	S1:	7·45–2·2 Mc/s (40·2–136 m.)
	S2:	22·0–7·25 Mc/s (13·6–41·4 m.)
INTERMEDIATE FREQUENCY:		470 Kc/s
VALVES:		UCH42, 10F9, 10LD3, UL41, UY41
SCALE LAMP:		19V, 0·097A m.e.s.
LOUDSPEAKER:	Type:	5 in. (12·7 cm.) dia., permanent magnet
	Impedance:	3Ω
OVERALL DIMENSIONS:		10¾ in. (27·3 cm.) wide, 8 in. (20·3 cm.) high, 6 in. (15·2 cm.) deep.
WEIGHT:		6 lb. (2·7 Kg.)

Issued by

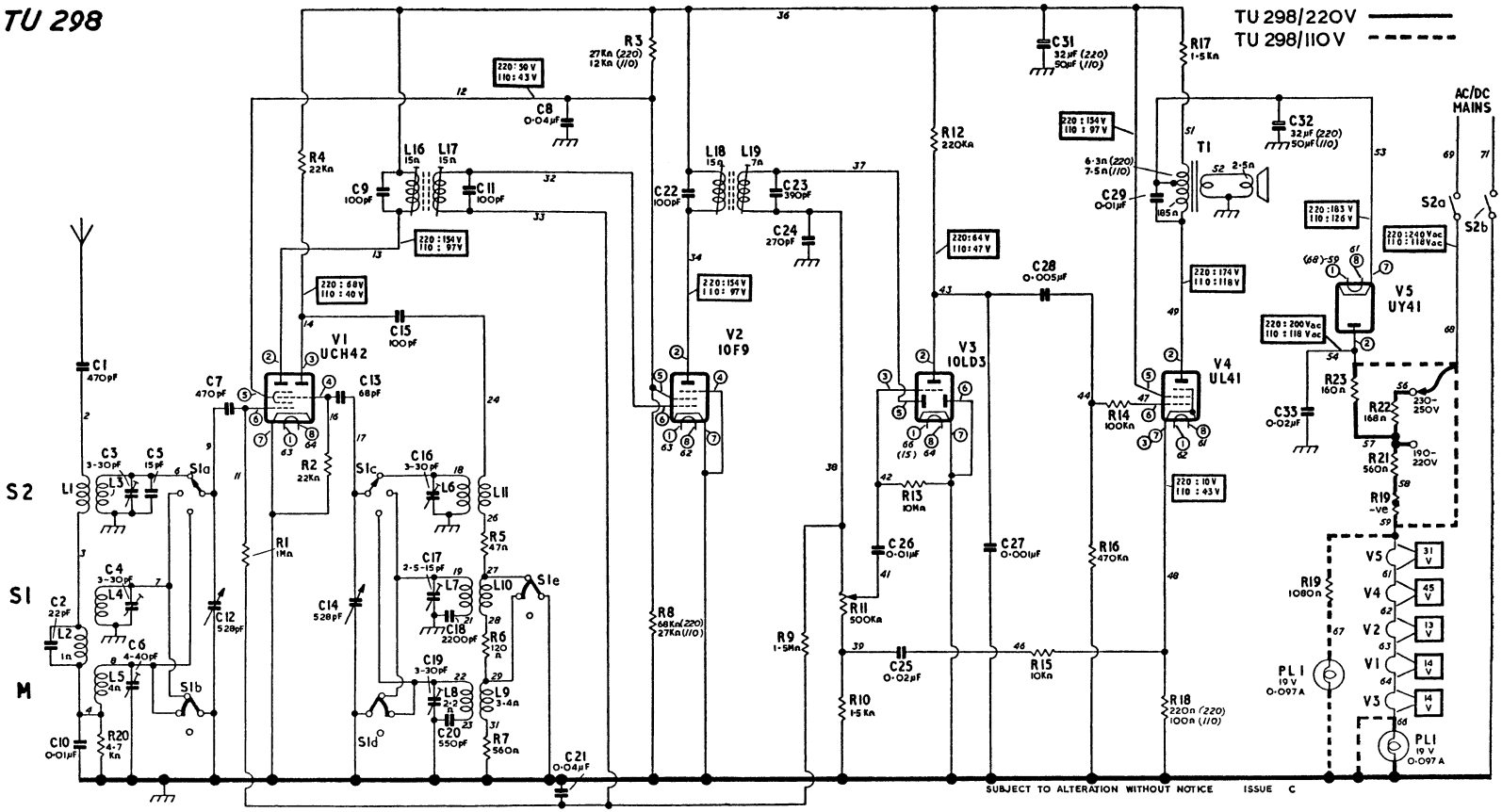
MURPHY RADIO LTD · WELWYN GARDEN CITY
HERTS · ENGLAND

TELEPHONE: WELWYN GARDEN 3434

FOREIGN TELEGRAMS AND CABLES: RADMURPHY, LONDON

105511

TU 298



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.

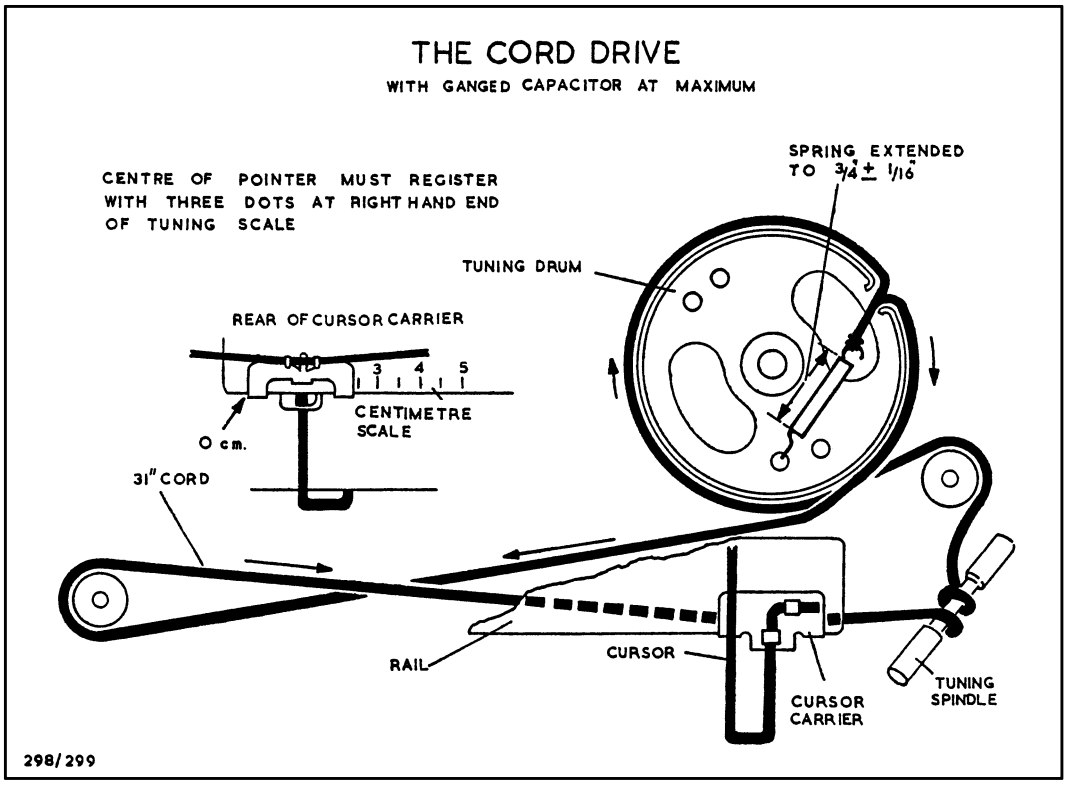
Where the resistance of a coil is less than one ohm the value is omitted. The valve pin numbers are shown within small circles.

Where a voltage or resistance reading is different in the two models, the alternative values are identified by the addition of (220) or (110) respectively. Circuit differences (these occur in the mains input section only) are identified by the use of heavy lines for the 220V version and broken lines for the 110V version.

Component terminals and connecting leads are identified by test point (t.p.) numbers which correspond with those appearing on the chassis drawings. The test point numbers in brackets refer to the 110V version.

©2018 www.murphy-radio.co.uk

©2018 www.murphy-radio.co.uk



PARTS LIST (Electrical Components)

ABBREVIATIONS

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	lin.	—	linear law

PART NO.	CIRCUIT NO.	VALUE	TOLERANCE AND REMARKS	PART NO.	CIRCUIT NO.	VALUE	TOLERANCE AND REMARKS
60824	C1	470 pF	20%, cer., 1750V d.c., isolator type	60763	C12	528 pF	Ganged capacitor, ae. section
				28172	C13	68 pF	5%, p.s.m., 350V d.c.
23603	C2	22 pF	10%, p.s.m., 350V d.c.	60763	C14	528 pF	Ganged capacitor, osc. section
56329	C3	3–30 pF	Trimmer, S2 ae.	28156	C15	100 pF	5%, p.s.m., 350V d.c.
56329	C4	3–30 pF	Trimmer, S1 ae.	56329	C16	3–30 pF	Trimmer, S2 osc.
23602	C5	15 pF	10%, p.s.m., 350V d.c.	56326	C17	5–15 pF	Trimmer, S1 osc.
56322	C6	4–40 pF	Trimmer, M. ae.	28353	C18	2,200 pF	5%, p.s.m., 350V d.c.
54083	C7	470 pF	20%, cer., 500V d.c.	56328	C19	3–30 pF	Trimmer, M. osc.
49454	C8	0·04 μF	25%, m.tub., 150V d.c.	28375	C20	550 pF	1%, p.s.m., 350V d.c.
52630	C9	100 pF	5%, p.s.m., 350V d.c.	49454	C21	0·04 μF	25%, m.tub., 150V d.c.
57806	C10	0·01 μF	10%, m.tub., 150V d.c.	52630	C22	100 pF	5%, p.s.m., 350V d.c.
52630	C11	100 pF	5%, p.s.m., 350V d.c.	28205	C23	390 pF	5%, p.s.m., 350V d.c.

©2018 www.murphy-radio.co.uk

PART NO.	CIRCUIT NO.	VALUE	TOLERANCE AND REMARKS
54080	C24	270 pF	20%, cer., 500V d.c.
49455	C25	0·02 μF	25%, m.tub., 150V d.c.
49447	C26	0·01 μF	25%, m.tub., 150V d.c.
49450	C27	0·001 μF	25%, m.tub., 350V d.c.
51551	C28	0·005 μF	25%, tub., 500V d.c.
51554	C29	0·01 μF	25%, tub., 750V d.c.
56156	C31	50 μF	+100% —20%, elec., 150V d.c. (TU298/110)
	C32	50 μF	
46532	C31	32 μF	+50% —20%, elec., 350V d.c. (TU298/220)
	C32	32 μF	
41423	C33	0·02 μF	20%, tub., 750V d.c.
27461	R1	1 MΩ	20%, 0·4W
25445	R2	22 KΩ	10%, 0·4W
25349	R3	12 KΩ	10%, 0·4W (TU298/110)
25485	R3	27 KΩ	10%, 0·5W (TU298/220)
25445	R4	22 KΩ	10%, 0·4W
24421	R5	47 Ω	10%, 0·4W
24581	R6	120 Ω	10%, 0·4W
24837	R7	560 Ω	10%, 0·4W
25477	R8	27 KΩ	10%, 0·4W (TU298/110)
25637	R8	68 KΩ	10%, 0·4W (TU298/220)
27493	R9	1·5 MΩ	20%, 0·4W
26917	R10	1·5 KΩ	20%, 0·4W
52816	R11	0·5 MΩ	Volume control, lin., with S2
27333	R12	220 KΩ	20%, 0·4W
27653	R13	10 MΩ	20%, 0·4W
27269	R14	100 KΩ	20%, 0·4W
27077	R15	10 KΩ	20%, 0·4W
27397	R16	470 KΩ	20%, 0·4W
25023	R17	1·5 KΩ	10%, 1·0W
24549	R18	100 Ω	10%, 0·4W (TU298/110)
24703	R18	220 Ω	10%, 1·0W (TU298/220)

PART NO.	CIRCUIT NO.	VALUE	TOLERANCE AND REMARKS
51092	R19	1,080 Ω	5%, 18W (TU298/110)
50612	R19	—	Current sensitive, CZ1 (S. T. & C.) (TU298/220)
25189	R20	4·7 KΩ	10%, 0·4W
68751	R21	560 Ω	6W,
	R22	168 Ω	8W, } 5%, (TU298/220)
	R23	160 Ω	3·6W,

PART NO.	CIRCUIT NO.	RESISTANCE (D.C.)	REMARKS
67986	L1	—	Coupling, S2 ae.
	L2	1·0 Ω	Coupling, S1 and M ae.
	L3	—	Tuned, S2 ae.
	L4	—	Tuned, S1 ae.
	L5	4·0 Ω	Tuned, M ae.
67987	L6	—	Tuned, S2 osc.
	L7	—	Tuned, S1 osc.
	L8	2·2 Ω	Tuned } M osc.
	L9	3·4 Ω	Coupling }
	L10	—	Coupling, S1 osc.
	L11	—	Coupling, S2 osc.
67694	L16	15·0 Ω	Pri. } 1st i.f.t.
	L17	15·0 Ω	Sec. }
67695	L18	15·0 Ω	Pri. } 2nd i.f.t.
	L19	7·0 Ω	Sec. }
60747	T1	185Ω +6·3Ω	Pri. } o.t. (TU298/220)
		—	Sec. }
61195	T1	185Ω +7·5Ω	Pri. } o.t. (TU298/110)
		—	Sec. }

PARTS LIST (Mechanical Components)

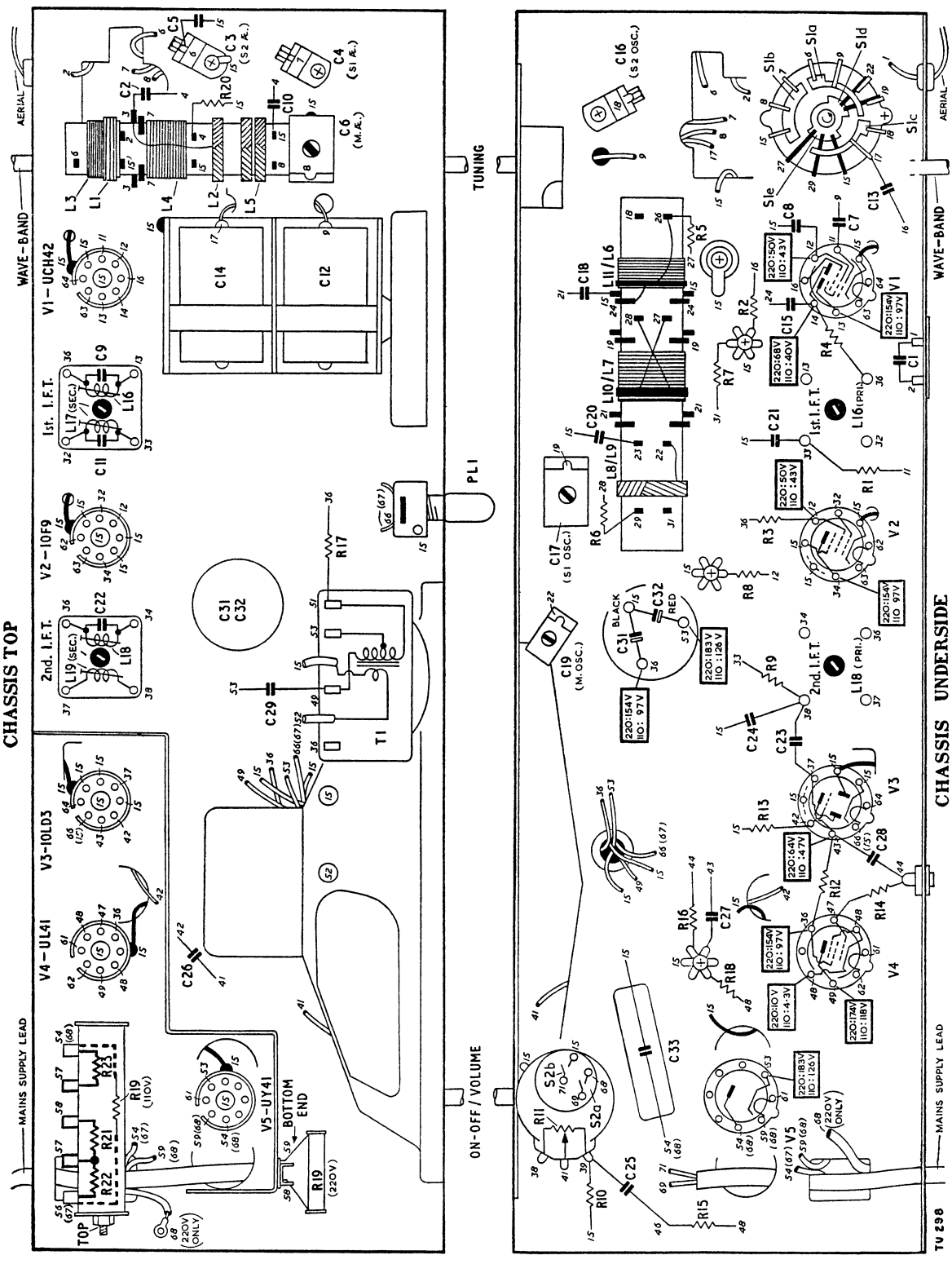
PART NO.	DESCRIPTION	REMARKS
60486	Anchor	for mains lead
69531	Back for cabinet	with heat deflector
68876	Baffle	
60761	Bearing, for spindle	bracket for tuning spindle
67982	Cabinet	
42580	Circlip	for tuning spindle
43009	Clamp	for C31/32
14770	Collar (3)	inside ganged capacitor mounting grommets
1871/2	Compound	for i.f.t. cores
3962/1	Cord, 31 in. (79 cm.)	for tuning drive
46910	Core, iron dust (4)	for i.f. transformers
60873	Drum	for ganged capacitors
1829/17	Fabric	for cabinet front
56622	Grommet (3)	for ganged capacitor mounting
68709	Guide rail with cm. scale	for pointer and carrier
61210	Knob (2)	for volume and tuning controls
69397	Knob, lever	for wave-band switch
68899	Label	for cabinet back (TU298/220)
68898	Label	for cabinet back (TU298/110)
16887	Lamp	19V, 0·097 amp., m.e.s.
56453	Lampholder	
65409	Loudspeaker	5 in. dia., permanent magnet
67990	Pad, felt	between cabinet and chassis in front of loudspeaker
55695	Pin (2)	for tuning drive pulleys
69141	Plug, insulating (2)	for eyelets in cabinet back
67985	Pointer	with carrier

PART NO.	DESCRIPTION	REMARKS
58850	Pulley (2)	for cord drive
67988	Reflector	
53434	Retainer (4)	for i.f.t. cores
68712	Scale, tuning	
69532	Screen, heat deflecting	on chassis behind loudspeaker (TU298/220)
70423	Screen, heat deflecting	on chassis behind loudspeaker (TU298/110)
10419	Screw, grub (3)	for control knobs
103878	Screw, PK 8Y × $\frac{5}{8}$ in. (2)	for fastening chassis rear to cabinet
103904	Screw, PK 6Y × $\frac{1}{2}$ in. (3)	for fastening cabinet back
103905	Screw, PK 6Y × $\frac{3}{8}$ in.	for fastening top of loudspeaker to cabinet
60762	Spindle	tuning
47478	Spring	for tuning drum
61976	Strip, clamping (2)	for ae. and osc. coils
22547	Studding	threaded rod for mains resistor mounting (TU298/220)
22549	Studding	threaded rod for mains resistor mounting (TU298/110)
68719	Switch	wave-band
51451	Valveholder (5)	B8A
34588	Washer felt (2)	between volume and tuning control knobs and cabinet
16649	Washer, shakeproof, $\frac{3}{8}$ in. (2)	for volume control and wave-band switch
42035	Washer, centring (2)	for mains resistor
58567	Washer insulating (2)	for mains resistor
490023	Washer, spring 4BA	for fastening mains resistor
14983	Washer	for upper screw fastening cabinet back
14949	Washer (2)	for lower screws fastening cabinet back

ALTERNATIVE VALVES

V2 — UF41 V3 — UBC41

©2018 www.murphy-radio.co.uk



The layout of the top and the underside of the chassis

CIRCUIT ALIGNMENT

Accessibility. The oscillator and aerial trimmers can be adjusted without removing the chassis from the cabinet.

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 i.f.t. cores.

Receiver oscillator frequency. On all wave-bands this is above the signal frequency.

Receiver setting. When the chassis is outside the cabinet, the left-hand edge of the cursor carrier (viewed from the rear with the chassis upright) is used as an indicator and calibration readings are observed on the centimetre scale on the guide rail at the rear of the reflector. The reading must be 0 when the ganged capacitors are at maximum capacitance.

When the chassis is inside the cabinet with the ganged capacitors at maximum capacitance, the cursor itself must register with the dots at the right-hand end of the tuning scale. Calibration dots are also provided at certain points on the scale to facilitate accurate tuning when checking the receiver in its cabinet. These dots are referred to in the table below.

Replacement oscillator and aerial coils. The inductance of the S1 and S2 tuned windings on the oscillator and aerial coil formers must be adjusted after the coil is fitted to the chassis. Referring to the circuit alignment table, commence at the low frequency end of the band concerned and, where it states "no adjustments", adjust the spacing of the end turns of the windings. Then adjust the trimming capacitors at the high frequency end of the band. Repeat these adjustments until there is no further improvement and finally seal the windings with wax.

CIRCUIT ALIGNMENT TABLE

CIRCUIT	NOTES	SIG. GEN. FREQUENCY	SIG. GEN. TERMINATION	CONNECT SIG. GEN. TO	RECEIVER SETTING	ADJUSTMENTS
2nd i.f.t.	Unscrew sec. core (top of can) before starting adjustments	470 Kc/s	Via 0·01 μF capacitor	V2 grid 1 (pin 6)	Ganged capacitors at maximum	L18 (pri.) below chassis L19 (sec.) top of can DO NOT READJUST PRI. CORE
1st i.f.t.	As above, and switch to M band	470 Kc/s	As above	C12 stator (t.p. 9)	As above	L16 (pri.) below chassis L17 (sec.) top of can DO NOT READJUST PRI. CORE
M		1364 Kc/s (220 m.)	Dummy aerial	C1 aerial tag (t.p. 1)	8·0 (220 m. dot)	C19 (osc.) below chassis C6 (ae.) above chassis
		600 Kc/s (500 m.)	As above	As above	1·6–1·9 (500 m.)	No adjustments
S1	Set osc. trimmer to lower capacitance peak.	6·1 Mc/s (49·2 m.)	As above	As above	8·15 (49 m. dot)	C17 (osc.) below chassis C4 (ae.) above chassis
		2·5 Mc/s (120 m.)	As above	As above	1·8–2·0 (120 m. dot)	No adjustments
S2	As above, and rock tuning control for maximum sensitivity while adjusting aerial trimmer.	17·79 Mc/s (16·86 m.)	As above	As above	7·45 (16 m. dot)	C16 (osc.) below chassis C3 (ae.) above chassis
		9·6 Mc/s (31·3 m.)	As above	As above	2·90–3·10 (31 m. dot)	No adjustments

PRINTED IN ENGLAND

©2018 www.murphy-radio.co.uk