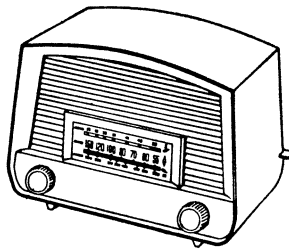


TUI98A

TUI98A

MURPHY SERVICE INSTRUCTIONS



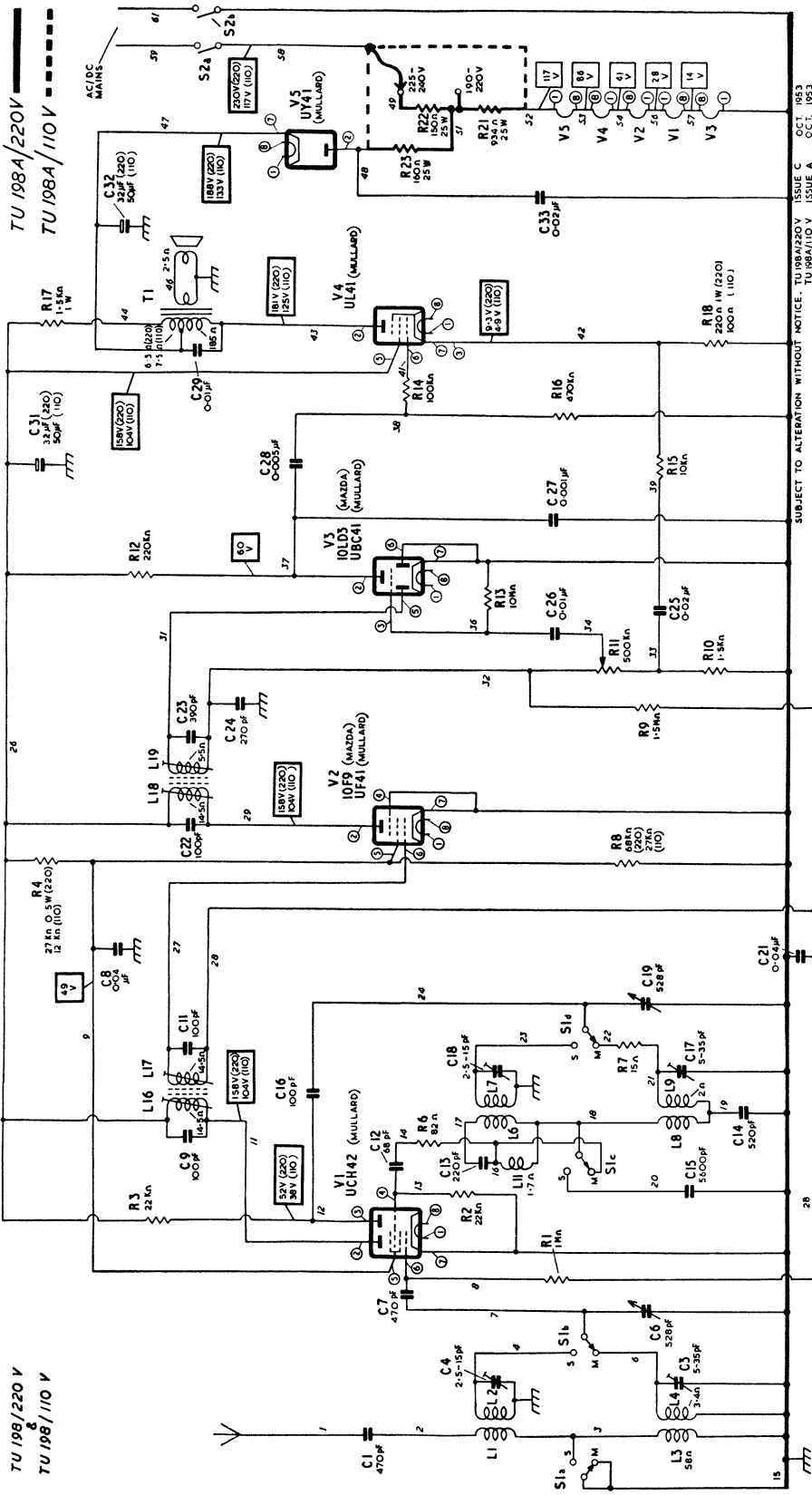
SPECIFICATION

MAINS SUPPLIES:	TU198A/220V: 190-240 volts a.c., 25-100 c/s, and 190-240 volts d.c. TU198A/110V: 110-127 volts a.c., 25-100 c/s, and 110-127 volts d.c.
CONSUMPTION:	TU198A/220V: 38 watts average TU198A/110V: 19 watts average
WAVE BANDS:	M: 528-1615 Kc/s (568-186 m.) S: 3.2-11.98 Mc/s (93.7-25.05 m.) 470 Kc/s
INTERMEDIATE FREQUENCY:	470 Kc/s
VALVES:	Mullard: UCH42, UF41 (or Ediswan-Mazda 10F9), UBC41 (or Ediswan-Mazda 10LD3), UL41, UY41
LOUDSPEAKER:	Type: 5 in. (12.7 cm.) dia., permanent magnet Impedance: 3 ohms
CABINET DIMENSIONS:	10 $\frac{3}{8}$ in. (35 cm.) wide, 7 in. (17.8 cm.) high, 5 $\frac{1}{8}$ in. (13.5 cm.) deep
WEIGHT:	5 $\frac{1}{2}$ lb. (2.5 Kg)

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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.

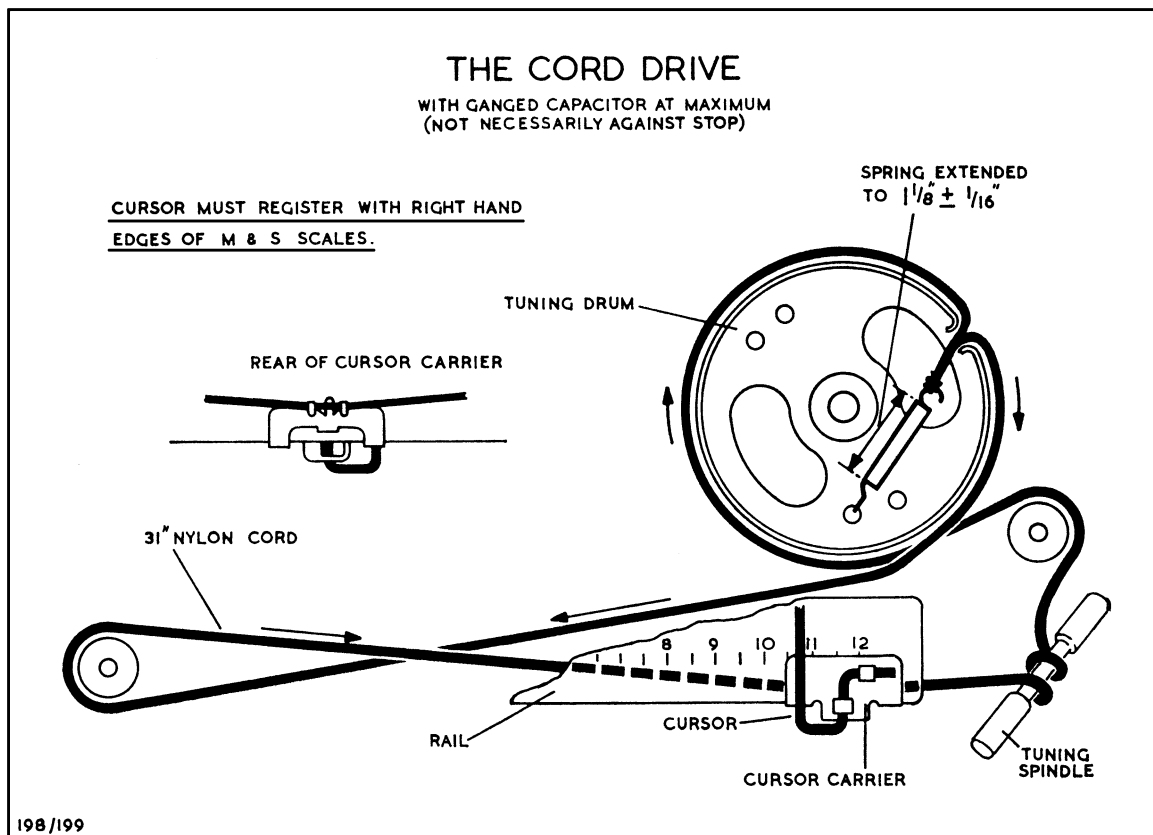
Where a voltage or resistance reading is different in the two models, the alternative values are identified by the addition of (220) or (110)

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 valve pin numbers are shown within small circles.

SUBJECT TO ALTERATION WITHOUT NOTICE. TU 198A/220V ISSUE C OCT. 1953
TU 198A/110V ISSUE A OCT. 1953



PARTS LIST (Electrical Components)

ABBREVIATIONS

cer. — ceramic
 p.s.m. — protected silvered mica
 tub. — paper tabular
 m.tub. — metallized paper tubular

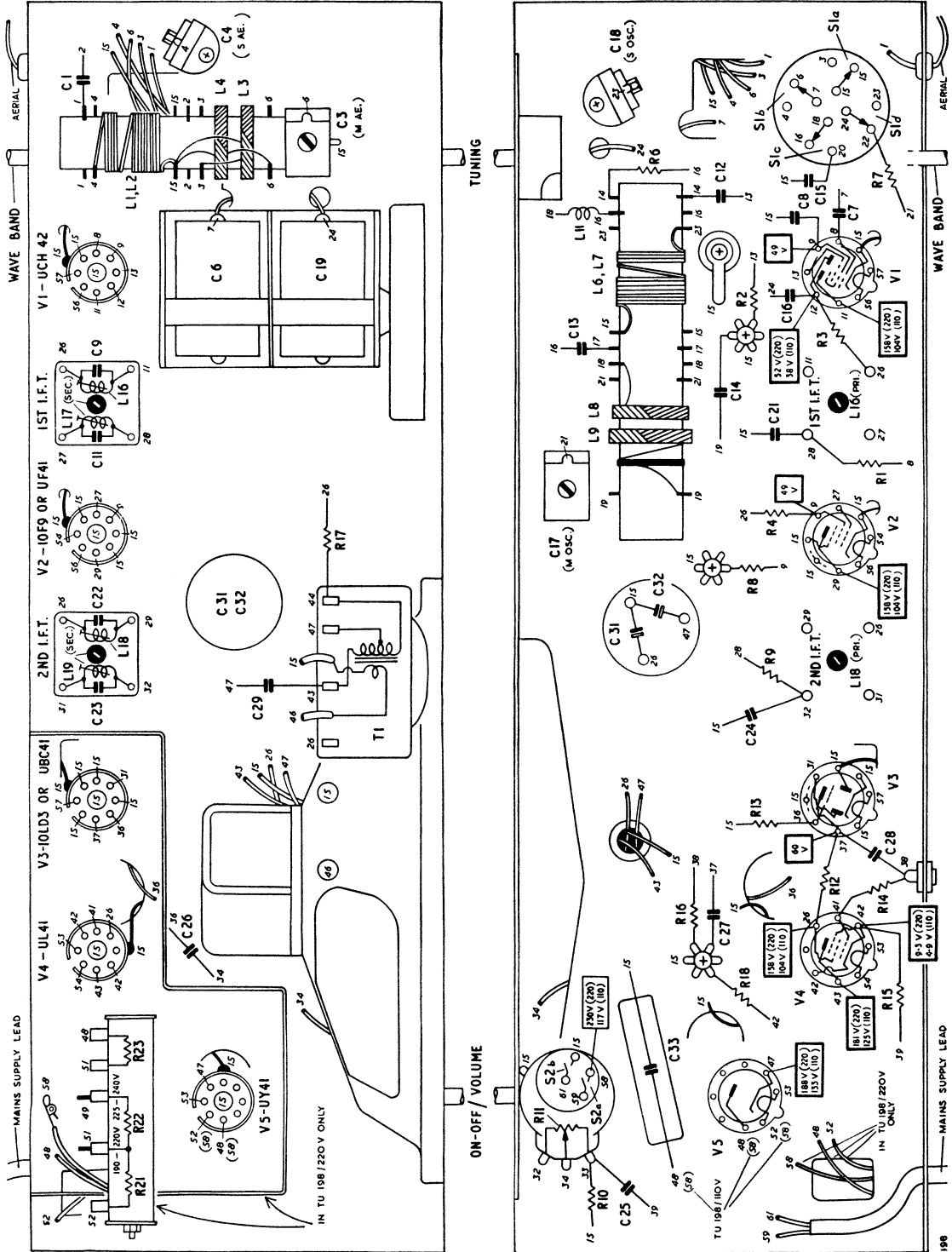
elec. — electrolytic
 V d.c. — d.c. voltage rating
 W — wattage rating
 lin. — linear law

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	52630	C11	100 pF	5%, p.s.m., 350V d.c.
56322	C3	5-35 pF	Trimmer, M ae.	28172	C12	68 pF	5%, p.s.m., 350V d.c.
56325	C4	2.5-15 pF	Trimmer, S ae.	28223	C13	220 pF	2%, p.s.m., 350V d.c.
60763	C6	528 pF	Ganged capacitor, ae. section (with C19)	28288	C14	520 pF	1%, p.s.m., 350V d.c.
54083	C7	470 pF	20%, cer., 500V d.c.	28300	C15	5600 pF	5%, p.s.m., 350V d.c.
49454	C8	0.04 μ F	25%, m.tub., 150V d.c.	28156	C16	100 pF	5%, p.s.m., 350V d.c.
52630	C9	100 pF	5%, p.s.m., 350V d.c.	56322	C17	5-35 pF	Trimmer, M osc.
				56325	C18	2.5-15 pF	Trimmer, S osc.
				60763	C19	528 pF	Ganged capacitor, osc. section (with C6)

PART NO.	CIRCUIT NO.	VALUE	TOLERANCE AND REMARKS	PART NO.	CIRCUIT NO.	VALUE	TOLERANCE AND REMARKS
49454	C21	0.04 μ F	25%, m.tub., 150V d.c.	27397	R16	470 K Ω	20%, 0.4W
52630	C22	100 pF	5%, p.s.m., 350V d.c.	25023	R17	1.5 K Ω	10%, 1W
52633	C23	390 pF	5%, p.s.m., 350V d.c.	24703	R18	220 Ω	10%, 1W (TU198A/220V)
54080	C24	270 pF	20%, cer., 500V d.c.	24549	R18	100 Ω	10%, 0.4W (TU198A/110V)
49455	C25	0.02 μ F	25%, m.tub., 150V d.c.	60781	{ R21	934 Ω	5%, 25W (TU198A/220V)
49447	C26	0.01 μ F	25%, m.tub., 150V d.c.		{ R22	150 Ω	
49450	C27	0.001 μ F	25%, m.tub., 350V d.c.		{ R23	160 Ω	
51551	C28	0.005 μ F	25%, tub., 500V d.c.				
51554	C29	0.01 μ F	25%, tub., 750V d.c.				
46532	{ C31	32 μ F	+50% -20%, elec., 350V d.c. (TU198A/220V)				
	{ C32	32 μ F					
56156	{ C31	50 μ F	+50% -20%, elec., 150V d.c. (TU198A/110V)				
	{ C32	50 μ F					
41423	C33	0.02 μ F	20%, tub., 750V d.c.				
				PART NO.	CIRCUIT NO.	RESISTANCE (D.C.)	REMARKS
27461	R1	1 M Ω	20%, 0.4W	61540	{ L1	—	Coupling } S ae. Tuned
25445	R2	22 K Ω	10%, 0.4W		{ L2	—	
25445	R3	22 K Ω	10%, 0.4W		{ L3	58 Ω	Coupling } M ae. Tuned
25485	R4	27 K Ω	10%, 0.5W (TU198A/220V)		{ L4	3.4 Ω	
25349	R4	12 K Ω	10%, 0.4W (TU198A/110V)	61541	{ L6	—	Coupling } S osc. Tuned
24517	R6	82 Ω	10%, 0.4W		{ L7	—	
24229	R7	15 Ω	10%, 0.4W		{ L8	—	Coupling } M osc. Tuned
27237	R8	68 K Ω	20%, 0.4W (TU198A/220V)		{ L9	2.1 Ω	
25477	R8	27 K Ω	10%, 0.4W (TU198A/110V)	61169	L11	1.7 Ω	Booster, S osc.
27493	R9	1.5 M Ω	20%, 0.4W	58116	{ L16	14.5 Ω	Pri. } 1st i.f.t. Sec.
26917	R10	1.5 K Ω	20%, 0.4W		{ L17	14.5 Ω	
52816	R11	0.5 M Ω	Volume control, lin. (with S2)	58117	{ L18	14.5 Ω	Pri. } 2nd i.f.t. Sec.
27333	R12	220 K Ω	20%, 0.4W		{ L19	5.5 Ω	
27653	R13	10 M Ω	20%, 0.4W	60747	T1	185+6.3 Ω	Pri. } o.t. (TU198A/220V) Sec.
27269	R14	100 K Ω	20%, 0.4W	61195	{ T1	185+7.5 Ω	Pri. } o.t. (TU198A/110V) Sec.
27077	R15	10 K Ω	20%, 0.4W				

PARTS LIST (Mechanical Components)

PART NO.	DESCRIPTION	REMARKS	PART NO.	DESCRIPTION	REMARKS
60486	Anchor	for mains lead	53434	Retainer (4)	for i.f.t. cores
60518	Back for cabinet	with heat deflector (TU198A/220V)	61542	Scale, tuning	
60754	Back for cabinet	less heat deflector (TU198A/110V)	61529	Screen, heat deflecting	on chassis, behind loudspeaker (TU198A/220V)
60761	Bearing	for tuning spindle	103510	Screw, 4BA $\frac{5}{8}$ in. (3)	for ganged capacitor mounting
60742	Cabinet		103504	Screw, 4BA $\frac{1}{2}$ in.	for tuning drum
42580	Circlip	for tuning spindle	10419	Screw, grub, 2BA $\frac{3}{8}$ in. (3)	for control knobs
34184	Clamp	for C31/C32	103904	Screw, self tapping 6V, $\frac{3}{8}$ in. (5)	for fastening cabinet back and for fastening top of loudspeaker to cabinet
15817	Clip	for mains voltage adjustment (TU198A/220V)	103878	Screw, self tapping, 8V, $\frac{5}{8}$ in. (2)	for fastening chassis rear to cabinet
14770	Collar (3)	inside ganged capacitor mounting grommets	60762	Spindle, tuning	for tuning drive cord
1871/2	Compound	for i.f.t. cores	47478	Spring	for ae. and osc. coils
3962/1	Cord	for tuning drive	61976	Strip, clamping (2)	threaded rod for mains resistor mounting (TU198A/220V)
46910	Core, iron dust (4)	for i.f. transformers	22547	Studding	wave band
60771	Cursor and carrier	for tuning scale	60779	Switch	
61209	Disc, indicator	for on-off switch	51451	Valve holder (5)	B8A
60873	Drum, tuning	for ganged capacitor	58554	Washer (3)	for ganged capacitor mounting grommets
56622	Grommet (3)	for ganged capacitor mounting	14949	Washer (2)	for lower screws fastening cabinet back
61210	Knob (2)	for volume and tuning controls	14983	Washer	for upper screw fastening cabinet back
60757	Knob, lever	for wave band switch	42035	Washer, centering	for mains resistor (TU198A/220V)
61543	Label	for cabinet back (TU198A/220V)	34588	Washer, felt	for tuning knob
61788	Label	for cabinet back (TU198A/110V)	58567	Washer, insulating (2)	for mains resistor (TU198A/220V)
51813	Loudspeaker	5 in. (12.7 cm.) dia.	16649	Washer, shakeproof, $\frac{5}{8}$ in. (2)	for volume control and wave band switch
61213	Pad, felt	between cabinet front and on-off indicator disc	47967	Washer, spacing	between reflector and loudspeaker
60777	Pad, plastic, scale retaining (4)	for corners of reflector	58572	Washer, spacing (3)	for screws fastening loudspeaker to cabinet and reflector
49506	Pin (2)	for tuning drive pulleys	490023	Washer, spring 4BA	for fastening mains resistor (TU198A/220V)
58850	Pulley (2)	for tuning drive			
60774	Rail	for cursor			
60776	Reflector	for tuning scale			



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

CIRCUIT ALIGNMENT

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

Tuning pointer (cursor) setting. This must be correct before aligning the r.f. circuits, and it must be adjusted only when the ganged capacitor plates are fully meshed (not necessarily against the stop).

When the chassis is outside the cabinet the left-hand edge of the cursor carrier must register with 10·5 on the carrier rail. When the chassis is in the cabinet the cursor itself must register with the right-hand edges of the M and S scales; move the scale to the right or left as required or, if necessary, move the cursor.

Receiver oscillator frequency. On both wave bands this is higher than the signal frequency.

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 loudspeaker speech coil.

Trimming tool. A non-metallic tool must be used for adjusting the i.f.t. cores.

Replacement osc. and ae. coils. The inductance of the S band tuned winding must be adjusted after fitting. Referring to the S band section of the circuit alignment table, commence at 3·75 Mc/s and, where it states "No adjustments", adjust the spacing of the end turns. Then adjust the trimmers at 9·6 Mc/s. 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)	—	L18 (pri.) below chassis L19 (sec.) top of can DO NOT RE-ADJUST PRI. CORE
1st i.f.t.	As above. Switch to M band.	470 Kc/s	As above	C6 stator (t.p. 7)	10·5 cm.	L16 (pri.) below chassis L17 (sec.) top of can DO NOT RE-ADJUST PRI. CORE
M		1364 Kc/s (220 m.)	Dummy aerial	C1 aerial tag (t.p. 1)	2·32 cm.	C17 (osc.) below chassis C3 (ac.) above chassis
		600 Kc/s (500 m.)	As above	As above	8·54–8·74 cm.	No adjustments
S	Set osc. trimmer to lower capacitance peak. Rock tuning control while adjusting ae. trimmer	9·6 Mc/s (31·3 m.)	As above	As above	2·17 cm.	C18 (osc.) below chassis C4 (ac.) above chassis
		3·75 Mc/s (80 m.)	As above	As above	8·35–8·54 cm.	No adjustments