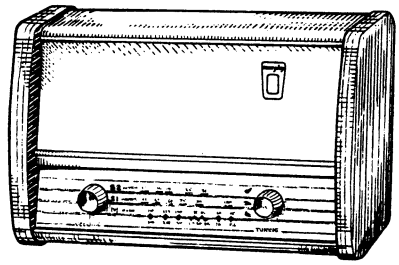
MURPHY SERVICE MANUAL



SPECIFICATION

BATTERY SUPPLY:	H.t.:	90 V
	L.t.:	1.5 V
CONSUMPTION:	H.t.:	10 mA
	L.t.:	175 mA
WAVE-RANGES:	M:	1605-528 Kc/s (187-568 m.)
	S1:	7.45-2.2 Mc/s (40.3-136.5 m.)
	S2:	22-7.25 Mc/s (13.65-41.4 m.)
INTERMEDIATE FREQUENCY:		470 Kc/s
VALVES:		1C2, 1F1, 1FD1, 1P1
TUNING INDICATOR:		1M1
LOUDSPEAKER:	Type:	5 in. (12.7 cm.) dia., permanent magnet
	Impedance:	3 ohms
OVERALL DIMENSIONS:		14 in. (35.6 cm.) wide, 9¼ in. (23.5 cm.) high, 6¼ in. (15.8 cm.) deep
WEIGHT:		8½ lb. (3.85 Kg)

Issued by

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FOREIGN TELEGRAMS AND CABLES: RADMURPHY, LONDON

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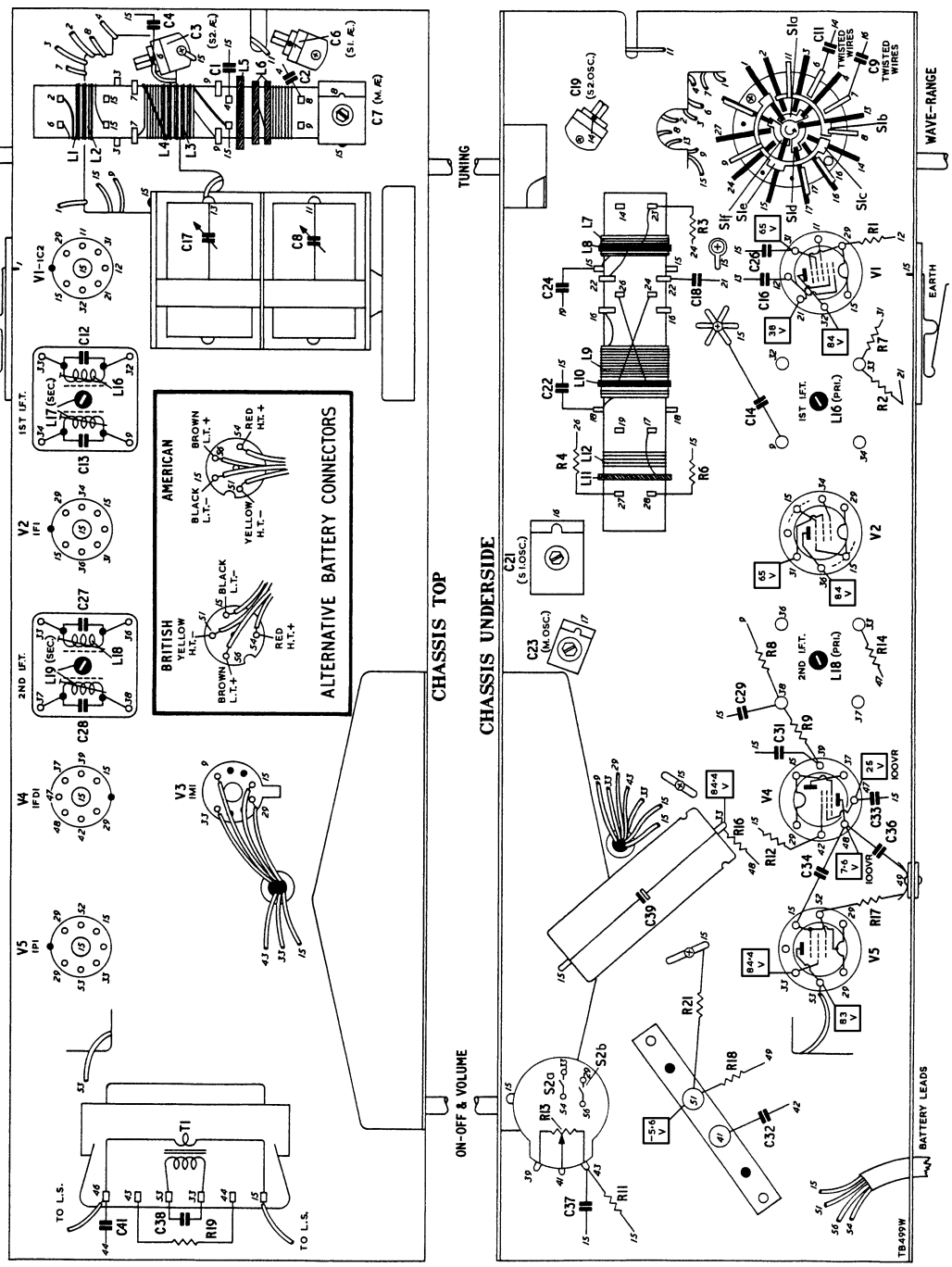


The layout of the top and the underside of the chassis.

The wave-range switch wafer is viewed from the front of the chassis and is shown in the M position; the black contacts and inner rotors are on the hidden side of the wafer, and the screw hole marked with a cross is the nearer to the chassis.

CIRCUIT ALIGNMENT

1. **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 50 mW, or approximately 0.4 V across the loudspeaker speech coil.

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

3. **Receiver oscillator frequency.** On all wave-ranges this is above the signal frequency.

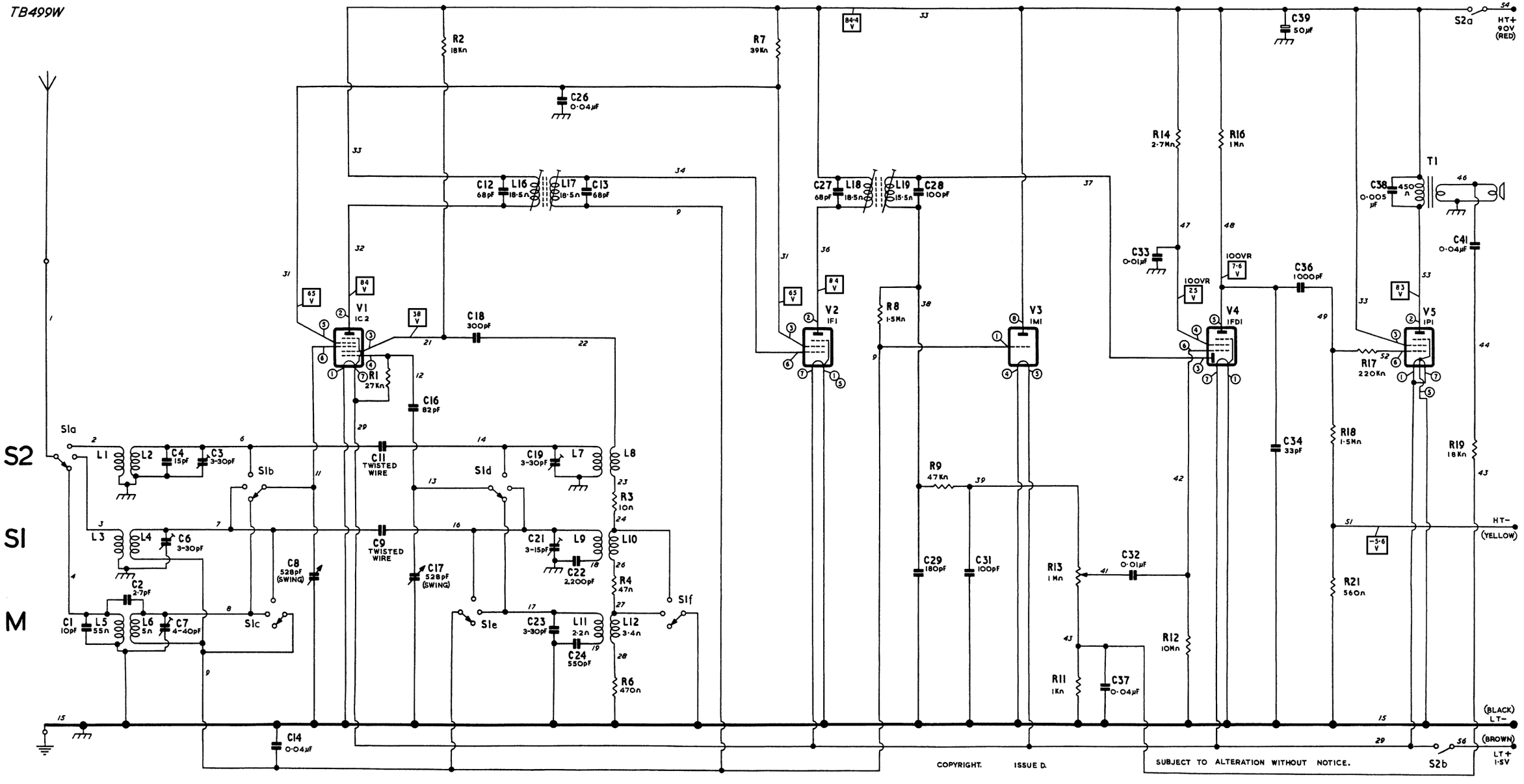
4. **Receiver setting.** When the chassis is outside the cabinet, the left-hand edge of the pointer carrier (viewed from the rear with the chassis upright) is used as an indicator and calibration readings are observed on the centimetre scale on the guide rail at the rear of the reflector. The reading must be 0.5 when the ganged capacitor is at maximum capacitance.

When the chassis is in the cabinet with the ganged capacitor at maximum capacitance, the pointer must register with the dots at the right-hand side of the tuning scale. The calibration can be checked with the chassis in the cabinet by using the small dot on the scale at each alignment frequency; at 500 m. the first nought should be used.

5. **Replacement oscillator and aerial coils.** The inductance of the M, S1 and S2 osc. tuned windings, and the S1 and S2 ae. tuned windings 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 wave-range 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 range. Repeat these adjustments until there is no further improvement and finally seal the windings with wax.

6. **Neutralizing capacitors (C9 and C11).** These are twisted wire types soldered directly to the wave-range switch tags, and no attempt need normally be made to adjust them. Each capacitor consists of a length of thin (30 s.w.g.) varnish insulated copper wire wound on a core of thick (18 s.w.g.) tinned copper wire; approximately 2 turns for C9 and 4 turns for C11.

CIRCUIT	NOTES	SIG. GEN. FREQUENCY	SIG. GEN. CONNECTIONS	RECEIVER SETTING	ADJUSTMENTS
2nd i.f.t.	Unscrew pri. core (base of can) and switch to M range before starting adjustments	470 Kc/s	Via 0.01 µF to V2 pin 6	Ganged capacitor at maximum	L19 (sec.) top of can L18 (pri.) below chassis DO NOT READJUST SEC. CORE
1st i.f.t.	As above	470 Kc/s	Via 0.01 µF to C8 stator (t.p.11)	As above	L17 (sec.) top of can L16 (pri.) below chassis DO NOT READJUST SEC. CORE
M		1364 Kc/s	Via dummy aerial to aerial clip	8.45 (220 m.)	C23 (osc.) below chassis C7 (ae.) top of aerial coil
		600 Kc/s	As above	2.15-2.45 (500 m.)	No adjustments (see note 5 above)
S1	Set osc. trimmer to lower capacitance peak and rock tuning control for maximum sensitivity while adjusting aerial trimmer	6.1 Mc/s	As above	8.65 (49.2 m.)	C21 (osc.) below chassis C6 (ae.) above chassis
		2.5 Mc/s	As above	2.25-2.55 (120 m.)	No adjustments (see note 5 above)
S2	As above	17.79 Mc/s	As above	7.95 (16.86 m.)	C19 (osc.) below chassis C3 (ae.) above chassis
		9.6 Mc/s	As above	3.35-3.65 (31.3 m.)	No adjustments (see note 5 above)



The circuit diagram

Circuit voltages are shown within rectangles and were measured with a 20,000 Ω/V meter while the receiver was switched to the M range 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 - DK92, 1AC6

V2 - DF96, 1AJ4

V3 - DM71, 1M3

V4 - DAF96, 1AH5

V5 - DL96, 3C4

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

p.s.m. - protected silvered mica

tub. - paper tubular

m. tub. - metallized paper tubular

elec. - electrolytic

V d.c. - d.c. voltage rating

W - wattage rating

log. - logarithmic law

PART NO.	CIRCUIT NO.	VALUE	TOLERANCE AND REMARKS	PART NO.	CIRCUIT NO.	VALUE	TOLERANCE AND REMARKS
66157	C1	10 pF	20%, cer., N750, 750 V d.c.	23678	C29	180 pF	10%, p.s.m., 350 V d.c.
52143	C2	2.7 pF	20%, cer., P100, 300 V d.c.	66169	C31	100 pF	20%, cer., N750, 750 V d.c.
56329	C3	3-30 pF	Trimmer, S2 ae.	57815	C32	0.01 µF	25%, m. tub., 150 V d.c.
23602	C4	15 pF	10%, p.s.m., 350 V d.c.	57815	C33	0.01 µF	25%, m. tub., 150 V d.c.
56329	C6	3-30 pF	Trimmer, S1 ae.	67499	C34	33 pF	10%, cer., N750, 750 V d.c.
56322	C7	4-40 pF	Trimmer, M ae.	54091	C36	1,000 pF	20%, cer., 500 V d.c.
60763	C8	528 pF (swing)	Ganged capacitor, with C17	49454	C37	0.04 µF	25%, m. tub., 150 V d.c.
				41409	C38	0.005 µF	25%, tub., 500 V d.c.
-	C9	Twisted wires	S1 neutralizing	56162	C39	50 µF	+100% - 20%, elec., 150 V d.c.
-	C11	Twisted wires	S2 neutralizing	49454	C41	0.04 µF	25%, m. tub., 150 V d.c.
52635	C12	68 pF	5%, p.s.m., 350 V d.c., inside 1st i.f.t.	25477	R1	27 KΩ	10%, 0.4 W
				25413	R2	18 KΩ	10%, 0.4 W
52635	C13	68 pF	5%, p.s.m., 350 V d.c., inside 1st i.f.t.	24165	R3	10 Ω	10%, 0.4 W
				24421	R4	47 Ω	10%, 0.4 W
49454	C14	0.04 µF	25%, m.tub., 150 V d.c.	27397	R5	470 KΩ	20%, 0.4 W
23662	C16	82 pF	10%,p.s.m., 350 V d.c.	24805	R6	470 KΩ	10%, 0.4 W
60763	C17	528 pF (swing)	Ganged capacitor, with C8	25541	R7	39 KΩ	10%, 0.4 W
				27493	R8	1.5 MΩ	20%, 0.4 W
28328	C18	300 pF	5%, p.s.m., 350 V d.c.	25573	R9	47 KΩ	10%, 0.4 W
56329	C19	3-30 pF	Trimmer, S2 osc.	24933	R11	1 KΩ	10%, 0.4 W
56326	C21	3-15 pF	Trimmer, S1 osc.	27653	R12	10 MΩ	20%, 0.4 W
28353	C22	2,200 pF	5%, p.s.m., 350 V d.c.	52834	R13	1 MΩ	Volume control, log., with S2
56328	C23	3-30 pF	Trimmer, M osc.				
28375	C24	550 pF	1%, p.s.m., 350 V d.c.	26245	R14	2.7 MΩ	10%, 0.4 W
49454	C26	0.04 µF	25%, m. tub., 150 V d.c.	26085	R16	1 MΩ	10%, 0.4 W
52635	C27	68 pF	5%, p.s.m., 350 V d.c., inside 2nd i.f.t.	27333	R17	220 KΩ	20%, 0.4 W
				27493	R18	1.5 MΩ	20%, 0.4 W
52630	C28	100 pF	5%, p.s.m., 350 V d.c., inside 2nd i.f.t.	25413	R19	18 KΩ	10%, 0.4 W
				24837	R21	560 Ω	10%, 0.4 W

PART NO.	CIRCUIT NO.	RESISTANCE (D.C.)	REMARKS
74703	L1	-	Pri. / Sec. — S2 ae.
	L2	-	
	L3	-	Pri. / Sec. — S1 ae.
	L4	-	
	L5	55 Ω	Pri. / Sec. — M ae.
	L6	5 Ω	
67987	L7	-	Tuned / Coupling — S2 osc.
	L8	-	
	L9	-	Tuned / Coupling — S1 osc.
	L10		
	L11	2.2 Ω	Tuned / Coupling — M osc.
	L12	3.4 Ω	

PART NO.	CIRCUIT NO.	RESISTANCE (D.C.)	REMARKS
67696	L16	18.5 Ω	Pri. / Sec. — 1st i.f.t., complete
	L17	18.5 Ω	
67697	L18	18.5 Ω	Pri. / Sec. — 2nd i.f.t., complete
	L19	15.5 Ω	
71776	T1	450 Ω	Pri. / Sec. — o.t.
		-	

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 title.

PART NO.	TITLE	DESCRIPTION AND REMARKS
76435	Back	for cabinet
60761	Bearing	for tuning spindle
76419	Bracket	for aerial coil mounting
76303	Bush, bearing (2)	inside **washer** (76304)
76433	Cabinet	with fittings
42580	Circlip	for tuning spindle
61976	Clamp (2)	securing osc. & ae. coils
14770	Collar (3)	inside ganged capacitor mounting grommets
3962/1	Cord, 30 in.	for tuning drive
60873	Drum, tuning	
74722	Escutcheon, metal	for tuning indicator
1829/24	Fabric, 14½ in. by 6½ in.	for cabinet front
74608	Foot (4)	for cabinet
56622	Grommet (3)	for ganged capacitor mounting
77312	Knob (2)	for Volume and Tuning controls
69397	Knob, lever	for Wave-range switch
68167	Loudspeaker	5 in. dia.
62414	Nut "U" shaped (2)	for fixing back
55695	Pin (2)	for **pulley** (70489)
63214	Plug, 4 pin	for battery (British)
62315	Plug, 4 pin	for battery (American)
76306	Pointer	with carrier
70489	Pulley (2)	for tuning drive
67988	Reflector	behind tuning scale
76418	Scale	
60762	Spindle	tuning
73738	Spring	retaining tuning indicator
47478	Spring	for tuning drive cord
76453	Surround, plastic	for tuning indicator
82606	Switch, S1	Wave-range
75370	Trim, 26 in.	ornamental strip at top and bottom of baffle
76304	Washer, centring (2)	for locating spindles through scale
58644	Washer, felt (2)	behind control knobs

THE CORD DRIVE

WITH GANGED CAPACITOR AT MAXIMUM