

Trader

SERVICE SHEET

3357

Roberts RT22

Portable radio

The Roberts RT22 is a small AM / FM battery-powered portable radio. Waveband coverage is long and medium wave AM, using an internal ferrite aerial, and the FM broadcast band on VHF, using an external telescopic aerial.

Controls are pushbutton for waveband selection, with a fourth cancelling on/off button. Volume and tuning controls are rotary. Four sliding pointers are provided for use with the tuning scale, for logging stations. All controls and the tuning scale are on the cabinet top escutcheon.

The RT22 is in conventional Roberts styling, having a padded leathercloth-covered cabinet with wood sides and a turntable base, with silver and black trim. A hinged carrying handle is fitted.

Brief Specification

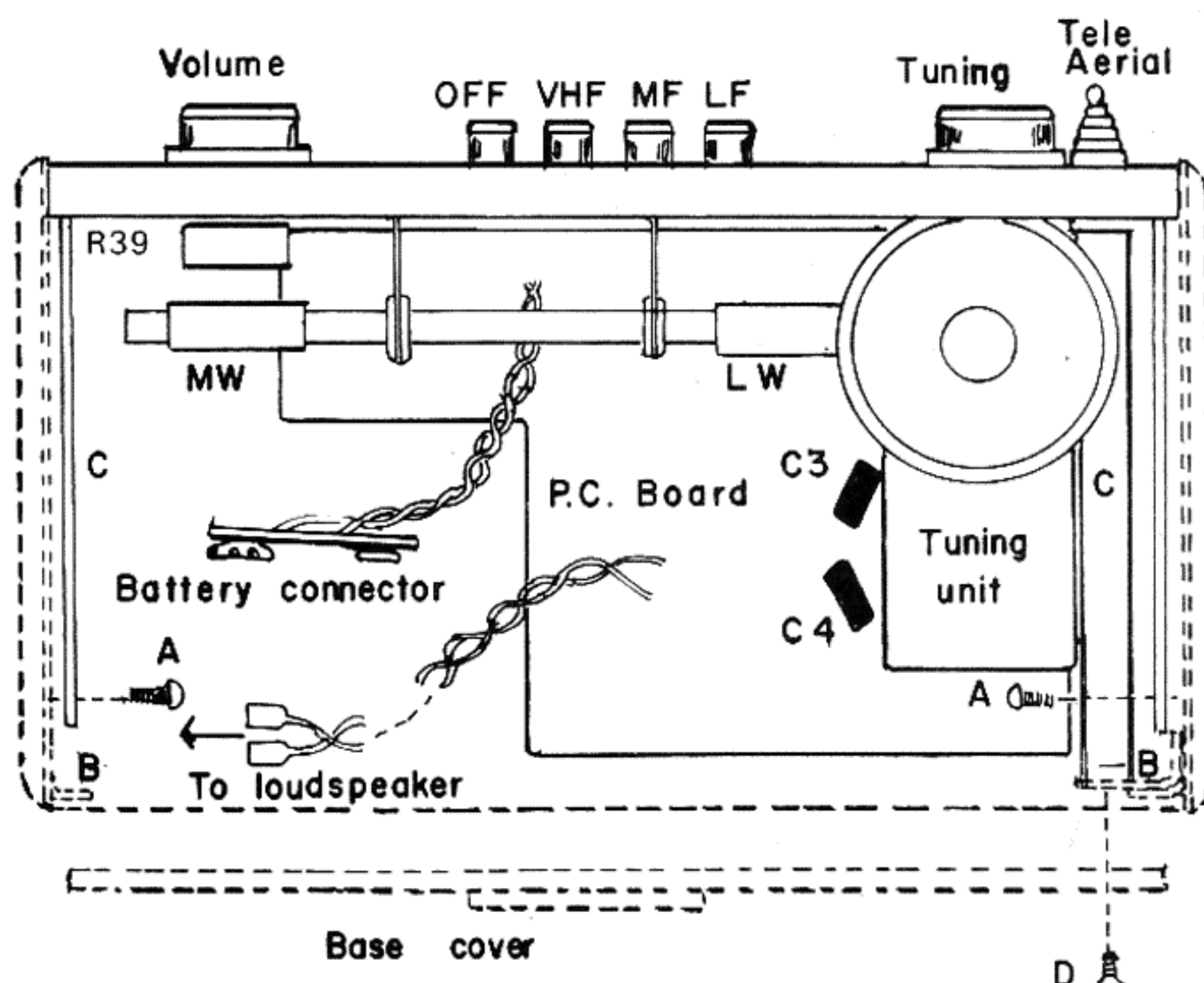
Power supply	One 9V PP9 (or equivalent) battery			
Wavebands	AM: LW 150 to 265kHz (1130 to 2000m)			
	MW 536 to 1620kHz (185 to 560m)			
	FM: VHF 87.5 to 104MHz			
Intermediate frequencies	AM: 470kHz			
	FM: 10.7MHz			
Transistors	11 } (see components list for details)			
Diodes	3 }			
Audio power output	450mW sinewave nominal maximum			
Loudspeaker	3½ inch (85mm) diameter round, impedance 12 ohms			
Dimensions and weight	Height‡	Width	Depth	Weight*
‡Handle raised	6¼in	9½in	3in	3lb 5oz
*with battery	(106mm)	(245mm)	(75mm)	(1.5 kg)
Manufacturer and UK Service	Roberts Radio Company Ltd., Molesey Avenue, West Molesey, Surrey KY8 ORL 01-979 7474			



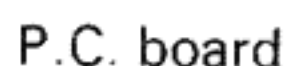
Dismantling

(see interior view diagram)

1. Remove bottom cover (ease out retaining flanges B).
2. Unplug and remove battery.
3. Release 2 screws A from inside cabinet sides to free chassis straps C.
4. Remove countersunk screw D from cabinet bottom to free telescopic aerial from bracket.
5. Carefully ease out complete chassis assembly through cabinet top to extent of leads.
6. To completely remove chassis from cabinet, unplug loudspeaker leads.
7. With chassis removed from cabinet, the speaker leads can be temporarily connected through the cabinet top (or a test bench speaker substituted), and the battery can be re-connected.



◀ Interior view



Equipment required:

Preliminaries

Procedure

AM (select 'MF')

I.F. Stages

R.F. Stages

MW (select "MF")

LW (select "LF")

3. Tune receiver to h.f. calibration mark on scale and signal generator to 260kHz. Adjust LW oscillator trimmer **C35** for maximum.

4. Retune receiver to i.f. calibration mark, and signal generator to 156kHz. Adjust LW aerial coil **L4** for maximum.

FM (select 'VHF')

Note: Only the I.F. Stages can be aligned. The FM r.f. tuner is a sealed unit and no attempt should be made to disturb the settings.

1. Connect FM generator via sweep marker, set to sweep 10.7MHz, deviated 1MHz, to test point TP1 (remove screened lead to VHF tuner). Connect oscilloscope input via diode probe to test point TP2 (Tr4 collector). Adjust FM final IF **T4** for maximum amplitude and symmetry of response on display.
2. Transfer oscilloscope input to between junction **R25/R26** and chassis. Adjust FM discriminator T5 until the straight part of the "S" curve centre passes through zero at 10.7MHz, level -3dB.

Components

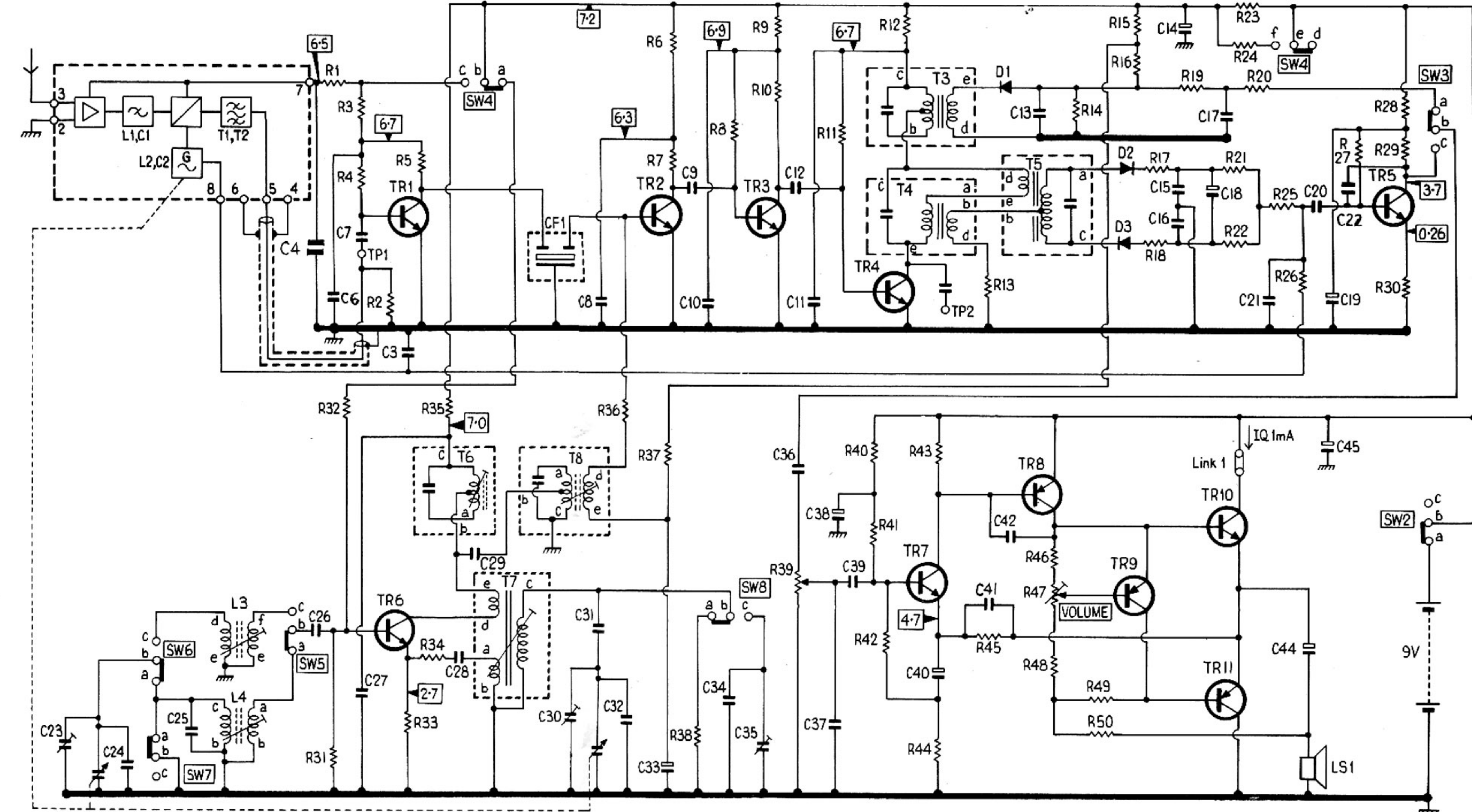
Resistors		
R1	150Ω	A1
R2	50Ω	A1
R3	470Ω	A1
R4	820kΩ	A1
R5	330Ω	A1
R6	1kΩ	A2
R7	390Ω	A2
R8	330kΩ	A2
R9	220Ω	A2
R10	220Ω	A2
R11	330kΩ	A2
R12	470Ω	A2
R13	150Ω	A2
R14	10kΩ	B2
R15	120kΩ	B2
R16	27kΩ	B2
R17	390Ω	B2
R18	390Ω	B2
R19	2.7kΩ	B2
R20	1kΩ	B2
R21	5.6kΩ	B2
R22	5.6kΩ	B2
R23	470Ω	B1
R24	470Ω	B1
R25	1kΩ	B2
R26	820kΩ	B2
R27	2.7MΩ	B2
R28	3.3kΩ	B2
R29	4.7kΩ	B2
R30	390Ω	B2
R31	15kΩ	A1
R32	18kΩ	A1
R33	2.7kΩ	A1
R34	15Ω	A1
R35	150Ω	A1
R36	220Ω	A2
R37	39kΩ	B2
R38	150kΩ	B1
R39	10kΩ	Volume
R40	15kΩ	C1
R41	150kΩ	C1
R42	270kΩ	C1
R43	2.7kΩ	C1
R44	18Ω	C1
R45	1.5kΩ	B1
R46	470Ω	B1
R47	470Ω	B1
R48	220Ω	B2
R49	15Ω	B2
R50	330Ω	B2

Capacitors

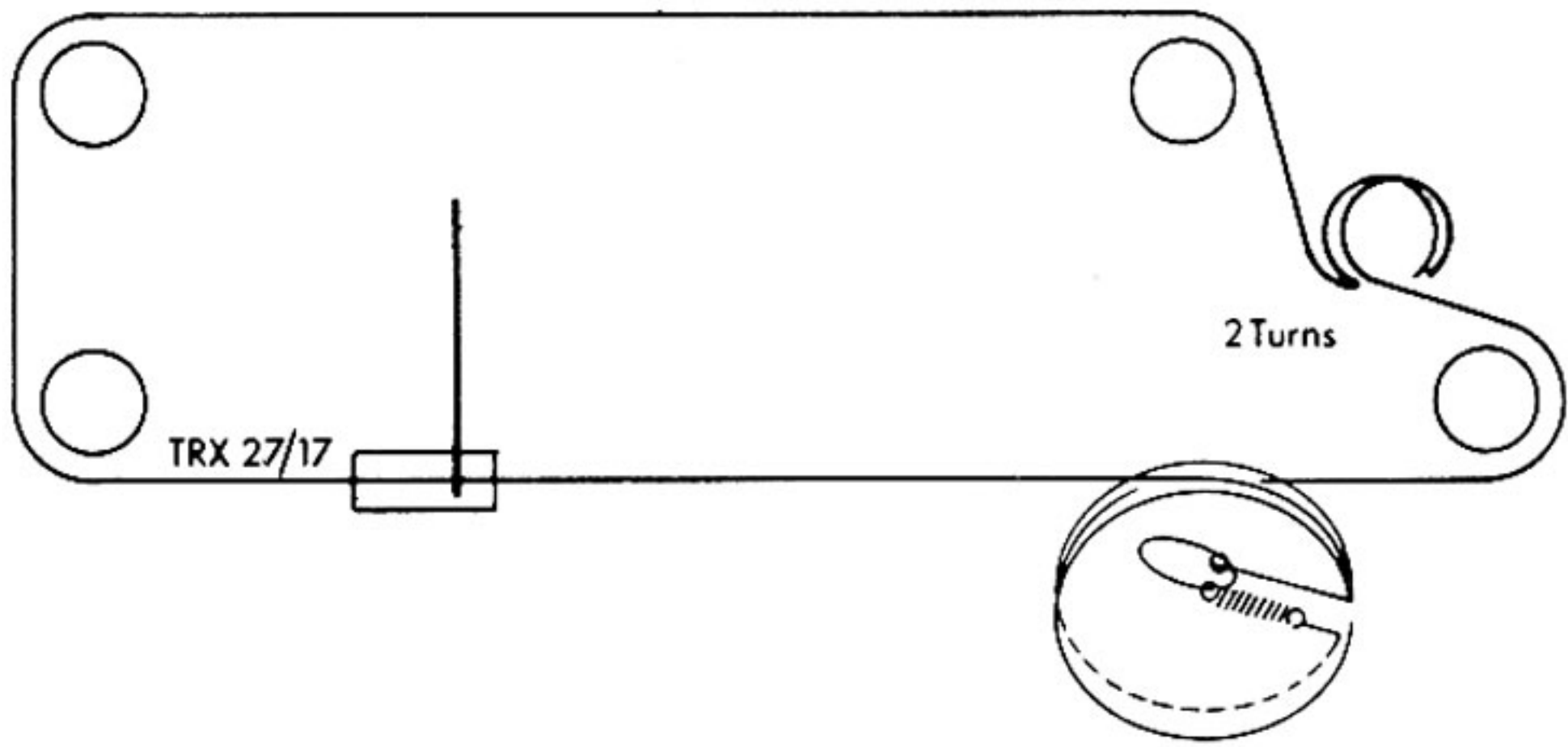
C1	Trimmer	A1
C2	Trimmer	A1
C3	100nF	On
C4	100nF	tuner
C5	100nF	agooard
C6	10nF	A1
C7	10nF	A1
C8	100nF	A2
C9	10nF	A2
C10	10nF	A2
C11	10nF	A2
C12	10nF	A2
C13	10nF	B2
C14	220μF	B1
C15	330pF	B2
C16	330pF	B2
C17	4.7nF	B2
C18	4.7μF	B2
C19	4.7μF	B2
C20	100nF	B2
C21	10nF	B2
C22	68pF	B2
C23	Trimmer	A1
C24	6.8pF	B1
C25	82pF	A1
C26	10nF	A1
C27	10nF	A1
C28	10nF	B1
C29	8.2pF	B1
C30	Trimmer	A1
C31	330pF	B1
C32	15pF	B1
C33	2.2μF	A2
C34	220pF	B1
C35	5.65pF	B1
C36	100nF	C1
C37	10nF	C1
C38	4.7μF	C1
C39	100nF	C1
C40	100μF	C1
C41	10nF	B1
C42	680pF	B1
C43	470μF	B2
C44	220μF	B2

*variable

C	23	24	25	4	26	6	7	3	28	29	30	31	32	33	9	10	34	35	36	12	11	37	38	39	40	41	42	13	15	14	18	17	20	19													
R					31	32	1	3	4	2	5	33	34	35	36	6	7	8	9	10	39	11	40	41	42	43	44	45	46	14	49	15	16	17	18	19	21	22	23	24	20	25	26	22	27	28	30
L				L3	L4					T6	T7	T8														T3	T4		T5																		



Complete circuit



Dial cord routing

Transistors

Tr1	BF194B	A1
Tr2	BF195C	A2
Tr3	BF195D	A2
Tr4	BF195D	A2
Tr5	BC148B	B2
Tr6	BF194B	A1
Tr7	BC148	C1
Tr8	BC158	B1

Diodes

D1	AA119	B2
D2	AA119	B2
D3	AA119	B2