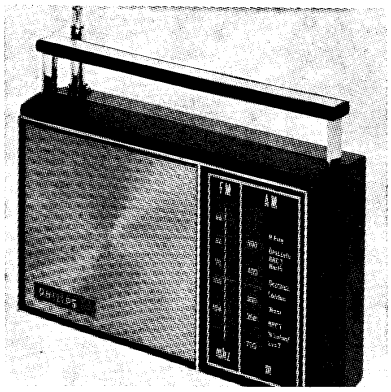
E R T SERVICE CHART 1709



PHILIPS RL284 STELLA ST6003T TRANSISTOR RADIO

Additional copies of this chart 1s. 6d. *including postage. Payment with order please to E R T,* 33-39 *Bowling Green Lane, London EC*1.

COMPACT portable AM/FM radio receivers with same electrical specification but differing in cabinet presentation. The RL284 has black cabinet with silver speaker grille, while the ST6003 has an ivory cabinet with matt black grille.

Batteries. Four 1½V cells, HP7 type or equivalent.

Consumption. AM 7·5mA, FM 12mA under quiescent conditions.

Transistors. T1 FM RF amplifier 2SA71B; T2 FM mixer/oscillator 2SA71A; T3 AM mixer oscillator/FM IF amplifier 2SA103CA; T4 AM/FM IF amplifier 2SA103CA; T5 AM/FM IF amplifier 2SA 103CA; T6 AF amplifier 2SB170A; T7 AF driver 2SB170A; T8 output 2SB172D; T9 output 2SB172D.

Diodes. D1 detector and AGC MA80; D2, D3 FM ratio detector OA70; D4 FM voltage stabilisation 1S990.

Wavebands. MW 184–600m (1630–500 kc/s); FM/VHF 87–104mc/s.

IFs. AM 470kc/s; FM 10·7mc/s.

Aerials. AM internal ferrite rod, FM 8-section telescopic rod.

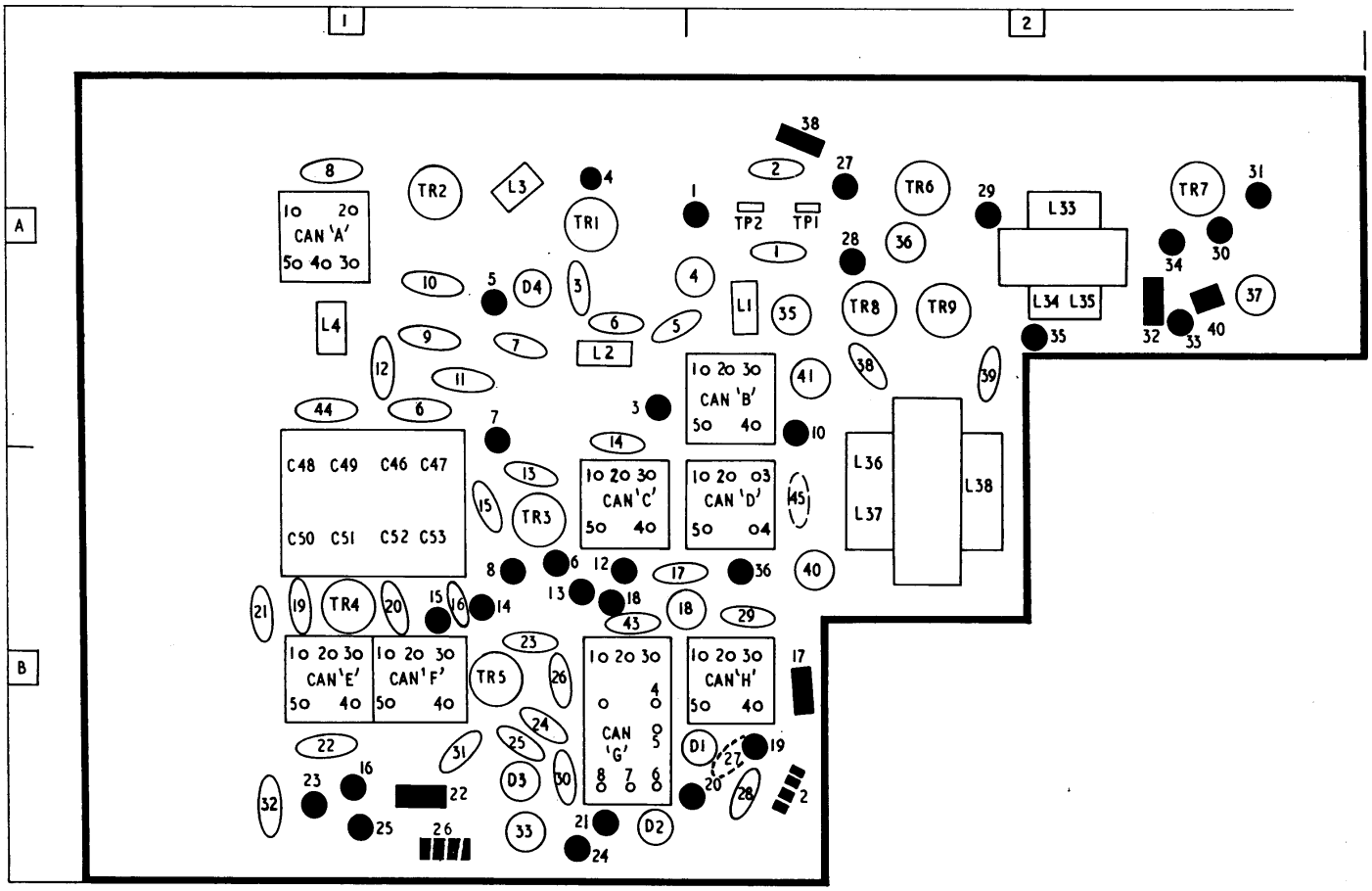
Output. 300mW.

Speaker. 3in., round, 8ohm impedance.

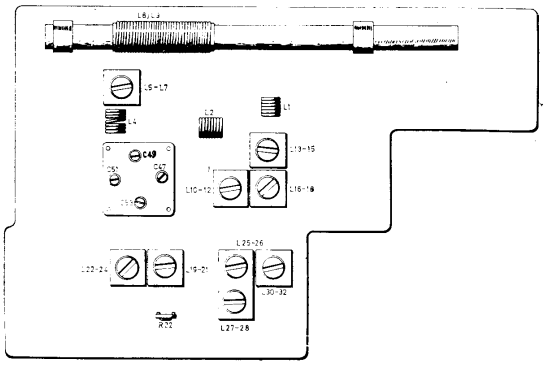
Sockets. Earphone/speaker, 8ohm impedance; External power supply ROKA.

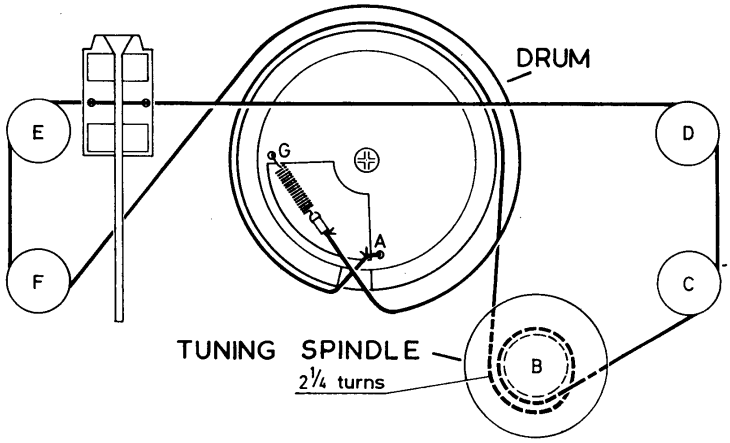
Dimensions. height 4⅝, length 7¼, depth 1⅞in.

Weight. 1¾lb including batteries.



Layout of components on printed circuit panel viewed from component side. Resistors are shown in solid black, capacitors in outline only. Alternative positions for C6 are shown. C19 is omitted from many sets





Above, trim plan showing location of adjustments necessary for alignment. Right. drive cord lacing diagram. Use 22½in. of braided glass/nylon yarn, loop end and lace as directed in text

DISMANTLING

Loosen screw in rear of receiver and carefully ease rear cabinet section from front, taking care not to sever telescopic aerial connecting lead. Component side of printed panel is now accessible.

To gain access to print side of panel and drive cord assembly, remove two screws from top of panel, one at each end of ferrite rod aerial, and one screw at bottom, adjacent to waveband switch. Then remove securing pillar next to output transformer. Complete panel may now be lifted from front cabinet section to extent of speaker and earphone/power socket connecting leads. Reassemble in reverse order.

ALIGNMENT

Equipment required. Output meter or AC voltmeter with 8ohm resistor in parallel; DC voltmeter with impedance of at least 20K ohm/volt; signal generator covering 470–1630kc/s and 10·7mc/s. with 30 per cent AM, and 10·7–104mc/s; aerial loop; 33KpF capacitor; trimming tools.

AM general. Monitor output across speaker with volume control at maximum, using an output meter set for 8ohm load impedance or AC voltmeter with parallel 8ohm resistor. Trimming level should not exceed 50mW or 0·7V.

AM IF. Switch receiver to AM and turn tuning gang to maximum. Inject 470kc/s signal, 30 per cent modulated, to base of TR3, via 33KpF capacitor. Adjust in turn L16–18, L19–21, L30–32 to get maximum output.

AM oscillator. Inject 500kc/s signal and adjust L13–15 for maximum output. Turn tuning gang to minimum position and inject 1630kc/s signal. Adjust C53 for maximum output.

AM RF. Tune signal generator to 600kc/s and inject signal via aerial coupling loop. Tune receiver to signal and adjust L8/9 for maximum output. Tune signal generator to 1400kc/s and tune receiver to signal.

Adjust C51 to give maximum output. Repeat oscillator and RF adjustments until no further improvement results.

FM IF. Preset resistor R22 to its mid-position. Switch receiver to FM and turn gang to maximum. Tune signal generator to 10·7mc/s and inject signal via 33KpF capacitor to emitter of TR2. Adjust in

turn L5–7, L10–12, L22–24 and L25–26 to get maximum output on DC voltmeter across C33.

Place DC meter between junction R24/R25 and junction L29/C29 and adjust L27/28 for zero volts. Inject 10·7mc/s signal with 30 per cent AM and adjust R22 for minimum output at speaker (giving maximum AM rejection).

FM oscillator. Inject 86mc/s signal to TP1 and 2, ie, across C1. Adjust L4 for maximum output at speaker. Turn tuning gang to minimum. Adjust signal generator to 104mc/s and adjust C49 to get maximum output.

FM RF. Tune signal generator to 90 mc/s and tune receiver to signal. Adjust L2 for maximum output. Tune signal generator to 100mc/s and adjust C47. Repeat oscillator and RF adjustments as necessary.

SERVICE NOTES

Drive cord. To replace drive cord, remove printed panel from cabinet as described under 'Dismantling'. Detach scale backing plate, remove old cord. Then, with panel viewed from print side and controls at bottom, turn tuning drum to its fully clockwise position.

Secure one end of a suitable length of cord, about 22½in., to hole in drum, position A. Thread pointer onto cord and tie a loop in the cord about 20½in. from A. Secure tension spring to this loop, then position tuning pointer about 7¼in. from the loop.

Lead cord from A clockwise around periphery of tuning drum and 2¼ turns anti-clockwise around tuning spindle B winding from bottom to top. Take cord from tuning spindle around pulleys C and D in an anti-clockwise direction, across printed panel and thence anticlockwise around pulleys E and F.

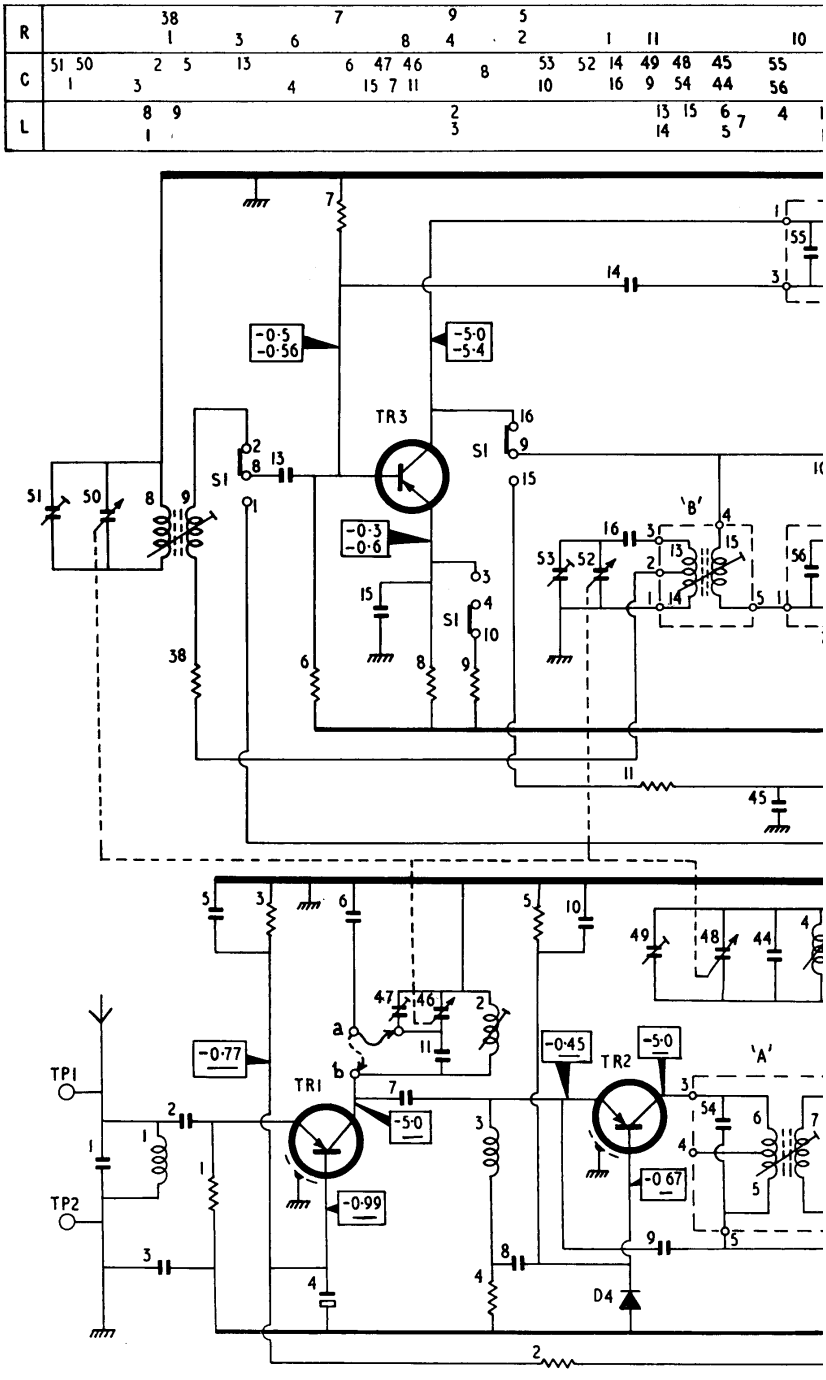
Lead cord clockwise around tuning drum, into drum aperture and secure tension spring to hole G. Secure two cord anchoring points A and G with locking paint or hard wax.

Pointer setting. With tuning control fully anticlockwise (minimum capacity), align pointer so that it is just visible at bottom of scale window. Secure pointer in this position on cord with locking paint or hard wax.

LOOK OUT— HERE IT COMES!

STARTING in E R T on September 18 will be a unique series of articles by Gordon King, author of the successful Telecolour Servicing series just concluded. Called "Telecolour Insight", the articles will analyse current colour TV receivers, model by model. Particular attention will be given to unusual circuits and to practical advice on fault finding. September 18—a date to remember.

CAPACITORS											
C1	25pF	A2	C12	10pF	A1	C24	7pF	B1	C36	10KpF	B1
C2	30pF	A2	C13	10KpF	B1	C25	5pF	B1	C37	10KpF	B1
C3	10KpF	A1	C14	5pF	A/B1	C26	30pF	B1	C38	10KpF	B1
C4	10mF	A1/2	C15	5KpF	B1	C27	10KpF/20KpF	B2	C39	10KpF	B1
C5	2KpF	A1	C16	140pF	B1	C28	10KpF	B2	C40	10KpF	B1
C6	25pF	A1	C17	5KpF	B1	C29	10KpF	B2	C41	10KpF	B1
C7	3pF	A1	C18	10mF	B1	C30	2KpF	B1	C43	10KpF	B1
C8	300pF	A1	C19	2pF	B1	C31	2KpF	B1	C44	10KpF	B1
C9	3pF	A1	C20	3pF	B1	C32	20KpF	B1	C45	10KpF	B1
C10	2KpF	A1	C21	40KpF	B1	C33	10mF	B1	C46–53	10KpF	B1
C11	70pF	A1	C22	20KpF	B1	C34	5mF	—	C54	10KpF	B1
			C23	40KpF	B1	C35	500KpF	A2	C55	10KpF	B1



Circuit diagram for RL284 and ST6003T receivers. Capacitor C19 is omitted from r
using 100Kohm/volt me

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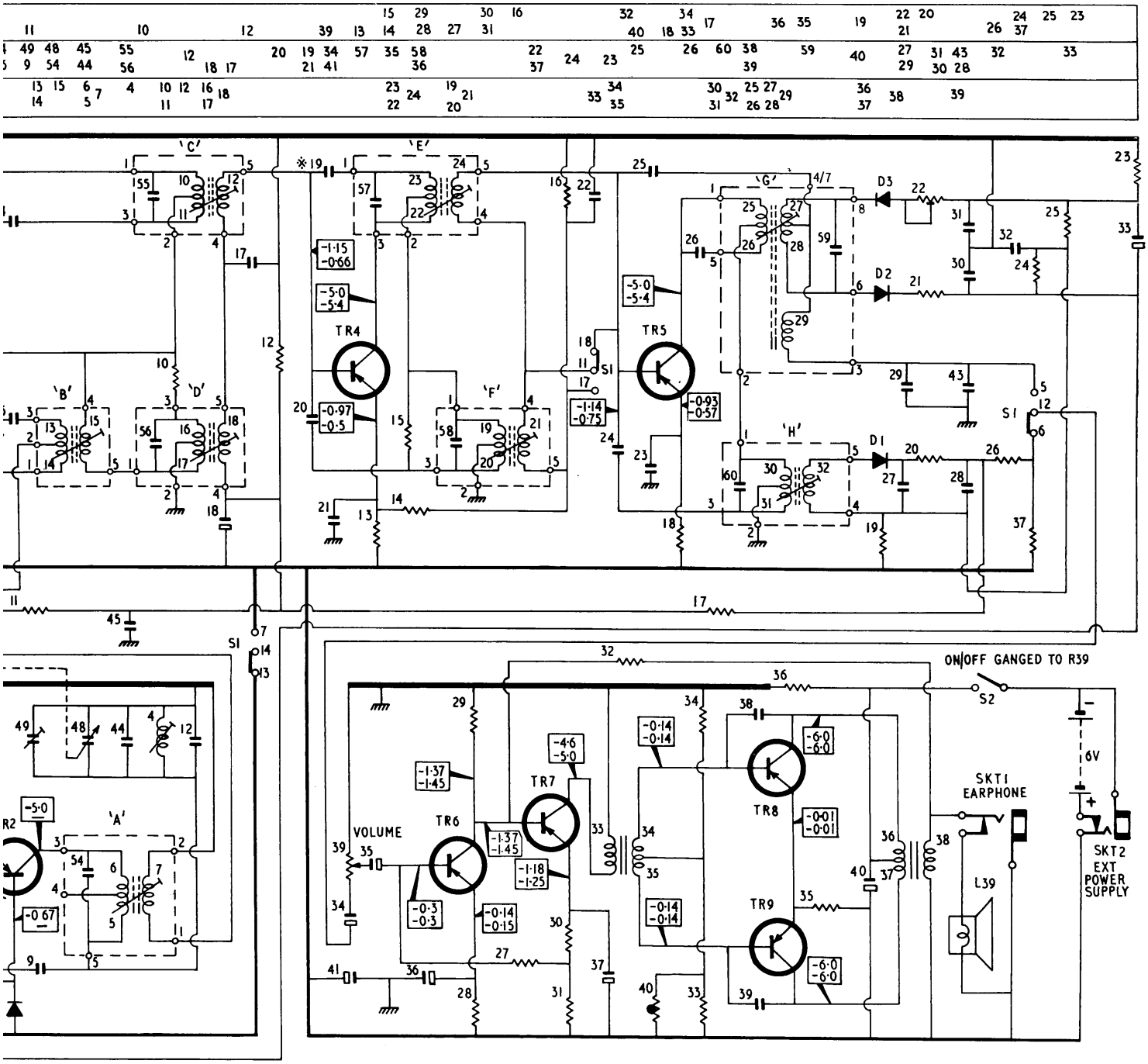
	B1	C36	50mF	A2	C56	—	can D	R6	3K9	B1	R18	680	B1	R30	390	A2
	B1	C37	50mF	A2	C57	—	can E	R7	33K	A1	R19	120	B2	R31	220	A2
	B1	C38	20KpF	A2	C58	—	can F	R8	1K5	B1	R20	470	B2	R32	47K	A2
F/20KpF	B2	C39	20KpF	A2	C59	—	can G	R9	270	—	R21	680	B1	R33	150	A2
F	B2	C40	200mF	B2	C60	—	can H	R10	150K	AB	R22	1K	B1	R34	3K9	A2
F	B2	C41	200mF	A2				R11	47K	21	R23	120K	B1	R35	6.8	A2
	B1	C43	5KpF	B1	**RESISTORS**			R12	68K	—	R24	3K3	B1	R36	82	B2
	B1	C44	3pF	A1	R1	560	A2	R13	680	g1	R25	3K3	B1	R37	5K6	—
F	B1	C45	20KpF	B2	R2	27K	B2	R14	5K6	B1	R26	4K7	B1	R38	47	A2
	B1	C46–53	gang	B1	R3	100K	A1	R15	330K	B1	R27	6K8	A2	R39	10K	—
	—	C54	—	can A	R4	470	A1	R16	68K	B2	R28	150	A2	R40	Thermistor	A2
pF	A2	C55	—	can C	R5	6K8	A1	R17	8K2	B1	R29	3K9	A2			



C19 is omitted from most sets. Wave change switch is shown in AM position. Figures in rectangles are voltages with respect to battery positive taken using 100Kohm/volt meter, with no signal input. Upper figures relate to FM, lower ones to AM

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