

"TRADER" SERVICE SHEET
1602

ROBERTS R200

Second and Third Main Versions

THERE are now three distinct versions of the Roberts R200 portable radio receiver, all known as model R200. The original one up to serial number 36,546 is covered by *Service Sheet 1449* whereas the information contained here deals with the two later versions, those with serial numbers from 36,547 to 70,000 and those with serial numbers from 70,001 onwards, plus modifications that have

since been made to the original version. The external appearance is the same in all three versions.

Release dates February 1961 and January 1962 (70,000 onwards).

TRANSISTOR ANALYSIS

Transistor voltages given in the tables in col. 3 and overleaf in col. 2 were derived from information supplied by the manufacturer. They were measured on an Avometer model 8 with the positive terminal connected to chassis in every case. The receiver was switched to m.w. with no signal input.

Transistor Table
(Serial Number 70,001 onwards)

Transistor	Emitter (V)	Base (V)	Collector (V)
TR1 AF117	1.0	1.1	6.6*
TR2 AF117	0.56	0.8	4.65*
TR3 AF117	0.9	1.14	6.75*
TR4 OC81D	1.2	1.27	8.4
TR5, TR6 OC81's	—	—	8.75

**Measured at remote end of i.f. primary.*

m.w. position the junction of L8 and C8 is switched to the top of L3 and C3 by an additional switch. S3, S4 and S6 remain unaltered.

From Serial Number 12,962.—TR4 changed to OC81D, TR5 and TR6 changed to OC81, R15 changed to 68Ω, R18 changed to 330kΩ and C23 changed to 0.25μF.

From Serial Number 26,705.—Waveband switch changed to a different type and wired according to the diagram in col. 3 overleaf of coil and switch unit.

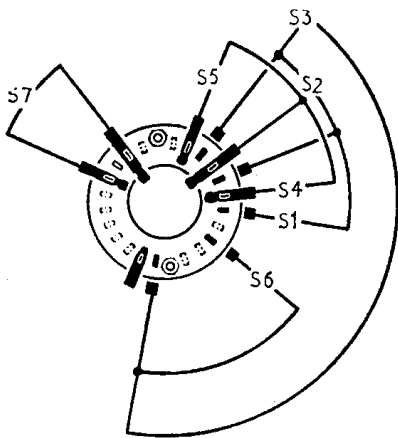
From Serial Number 27,340.—A 5.6Ω resistor inserted between the bottom of R8, C19 and chassis. R18 is removed from the junction R9, C21 and connected to the junction R8, C19 and 5.6Ω resistor. R18 changed to 47Ω.

From Serial Number 27,600.—R15 changed back to 82Ω.

MODIFICATIONS TO EARLY RECEIVERS (Refer to Service Sheet 1449)

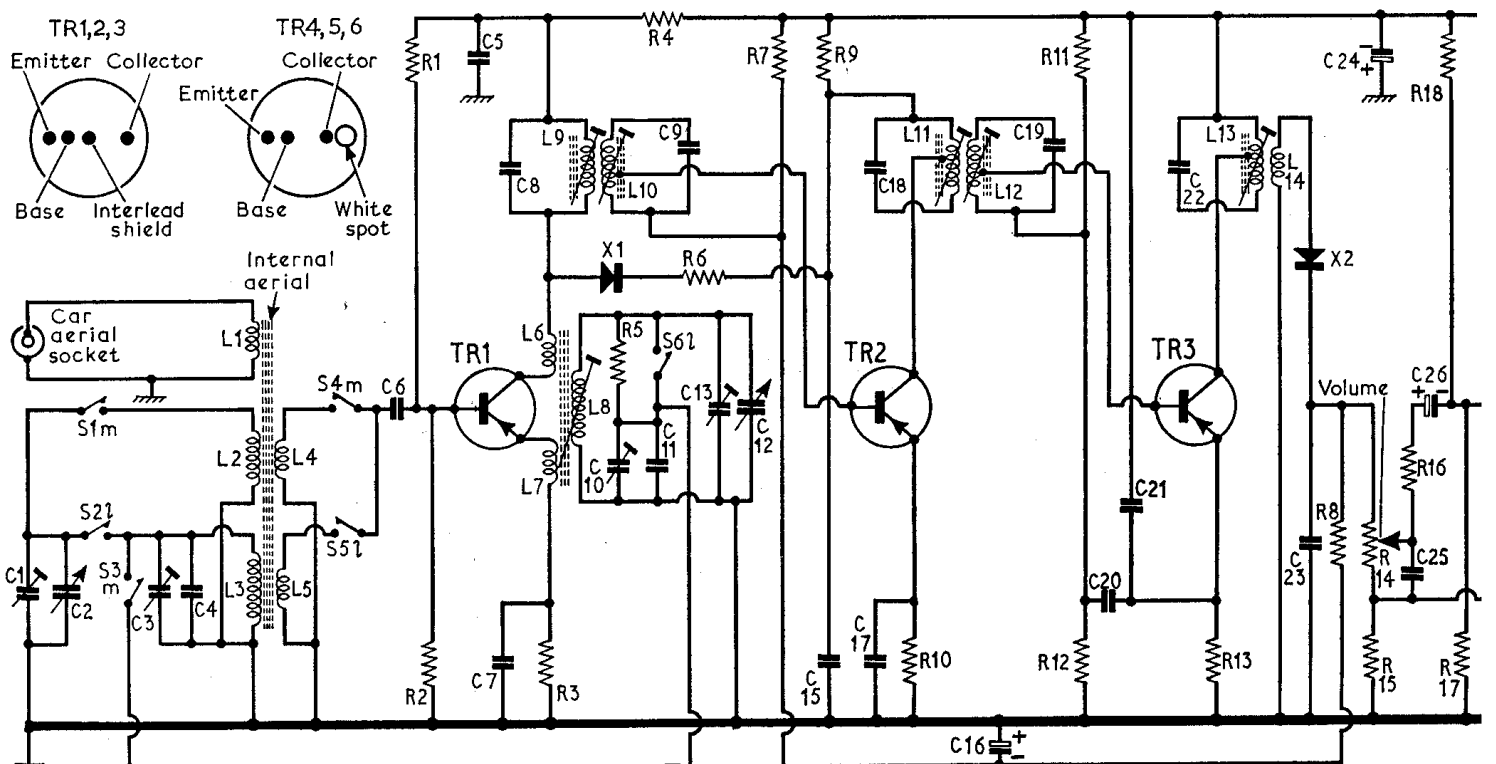
Since the issue of the above *Service Sheet* some circuit changes have been made affecting receivers up to serial number 36,546 as follows.

From Serial Number 8,200.—C5 changed to 0.02μF. Waveband switch connections are changed so that S1 is connected between C1, C2 and L2; and S2 is connected between C1, C2 and L3, C3. The lower end of L2, L4 is removed and connected to chassis. The connections to S5 are modified and in the



Switch diagram for the circuit diagram below, as seen from rear of inverted chassis.

C	1,2	3	4	6	5,7,8	10	11,9	13,12	15	17,18	16	19	20,21	22	23	24,25,26
R	1,2	3	5	4	6	7	9	10	11,12	13	8	14,15,16,18,17,				



Circuit diagram of the latest type of chassis, used in the third main version of the Roberts R200, with serial numbers above 70,000. At 1 between X2, C23, and R8, R14, and at 90,000 C4 was removed from the l.w. aerial c

Circuit Alignment—continued

- reading on the meter. Remove 3Ω meter.
- 4.—Switch receiver to m.w. and tune to 517m. Feed in a 580kc/s signal and adjust L8 (B2) and L2 (C3).
 - 5.—Tune receiver to 222m, feed in a 1,350kc/s signal and adjust C12 (B1) and C1 (B2).
 - 6.—Repeat operations 4 and 5.
 - 7.—Switch receiver to l.w. and set the pointer at 222. Feed in a 245kc/s signal and adjust C10 (C1) and C3 (C1).
 - 8.—Set the pointer at 517, feed in a 155kc/s signal and adjust L3 (A3).
 - 9.—Repeat operation 7.
 - 10.—Switch receiver to m.w. and tune to 517m. Feed in a 580kc/s signal and adjust L2 (C3).
 - 11.—Repeat operations 5 and 8.

Transistor Table (Serial Number 36,547-70,000)

Transistor	Emitter (V)	Base (V)	Collect (V)
TR1 OC44	1.5	1.4	7.4*
TR2 OC45	0.5	0.6	7.4*
TR3 OC45	0.9	1.0	7.4*
TR4 OC81D	1.0	1.2	8.8
TR5, TR6 OC81's	—	—	—

*Measured at remote end of i.f. primary.

Serial Numbers between 36,547 and 70,000

- 1.—Connect an output meter of 3Ω impedance in place of the speaker, or an a.c. voltmeter across the speaker. Connect a signal generator, between chassis and the junction of S4, S5 and C4. The generator output should be maintained as low as possible at all times during the alignment operations to prevent a.g.c. action from masking the adjustment peaks.
- 2.—Switch the receiver to m.w., turn the tuning gang to minimum capacitance and the volume control fully clockwise. Feed in a modulated 470kc/s signal and adjust the cores of L13 (E5), L11 (F5) and L9 (F5) for maximum output. Repeat these adjustments until no further improvement can be obtained.
- 3.—Turn the tuning gang to maximum capacitance and check that the pointer coincides with the high wavelength ends of the tuning scales.
- 4.—Loosely couple the signal generator output to the ferrite rod aerial coils L1-L5. Tune the receiver to 500m. Feed in a 600kc/s signal and adjust the core of L7 (F6) for maximum output. Then slide the former of L1 (D6) along the ferrite rod for maximum output.

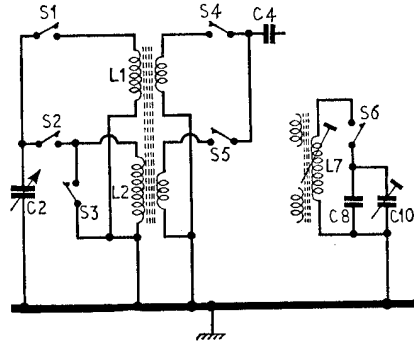
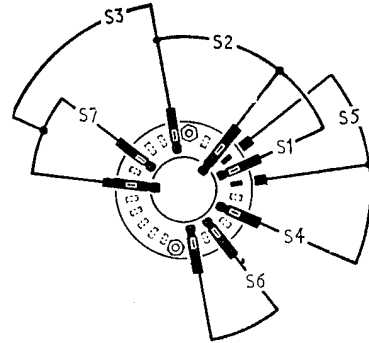
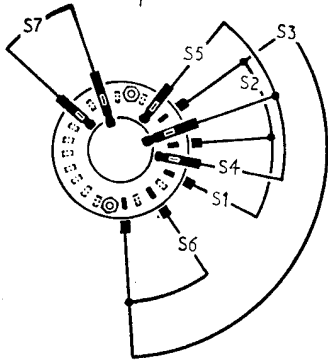
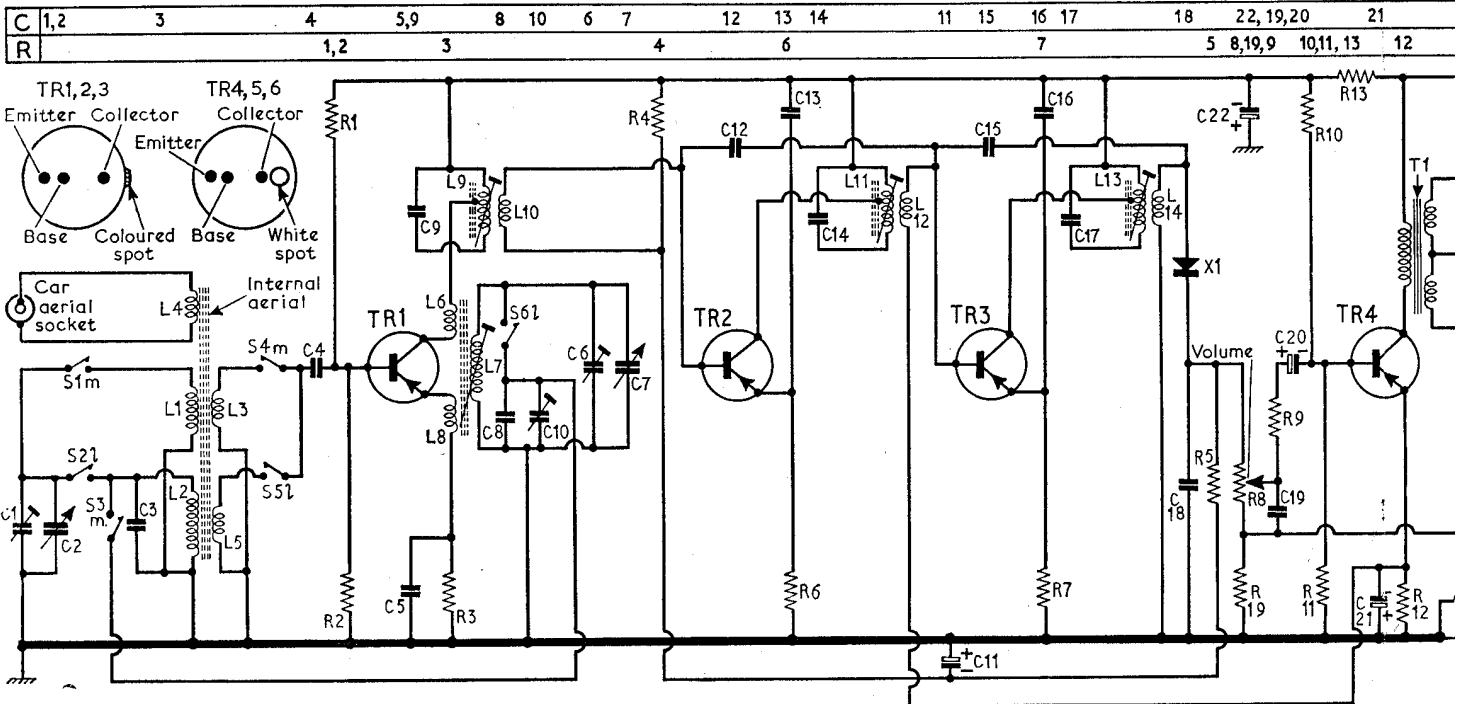


Diagram of modified switch unit (above) in the later production of first version, introduced at serial number 26,705. Changes to the tuning coils are shown below it, with switch numbers that agree with the diagram above. These are different from the numbers used in Service Sheet 1449.



Switch unit diagram associated with the circuit diagram below, drawn as seen from the bottom of an inverted chassis, looking over the printed circuit panel.



Circuit diagram of the second main version, starting at serial number 36,547 and continuing up to number 70,000. This version comprises the original one of Service Sheet 1449 and all the modifications to it described overleaf, with certain other additions.

- 5.—Tune 214m calibration mark. Feed in a 1,400kc/s signal and adjust C6 (E4) and C1 (E5) for maximum output.
- 6.—Repeat operation 4 for maximum output, then repeat operations 4 and 5 for optimum response.
- 7.—Switch the receiver to l.w. and tune it to 425m. Feed in a 185kc/s signal and adjust C10 (F4) for maximum output. Then slide the former of L2 (D6) along the ferrite rod for maximum output.

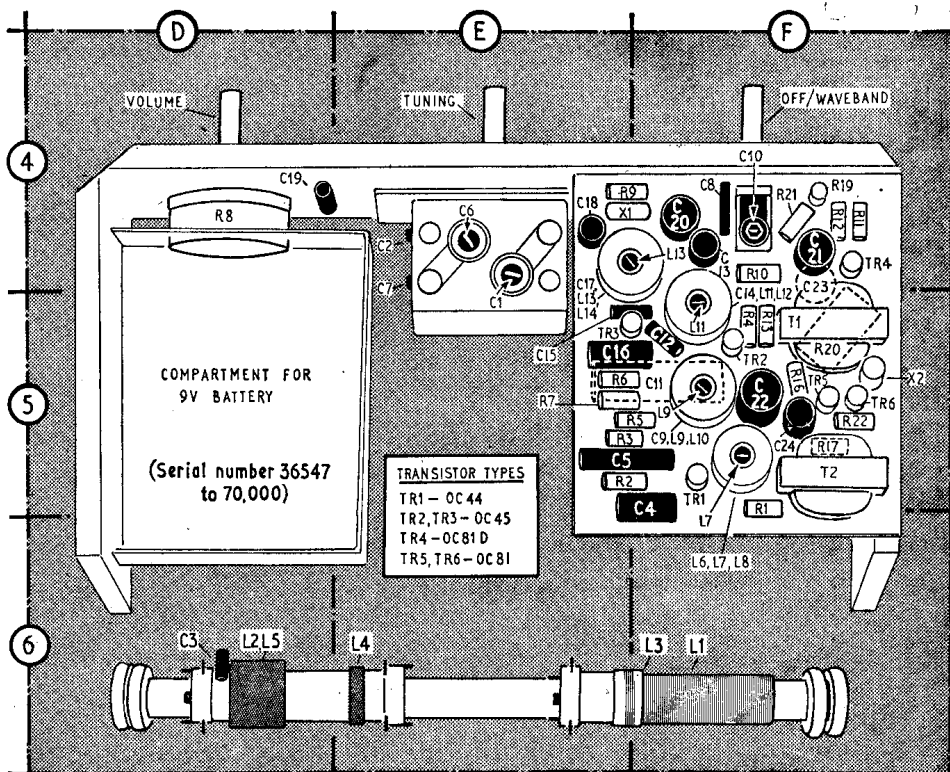
GENERAL NOTES

Battery.—The battery recommended by the manufacturer is an Ever Ready PP9, rated at 9V.

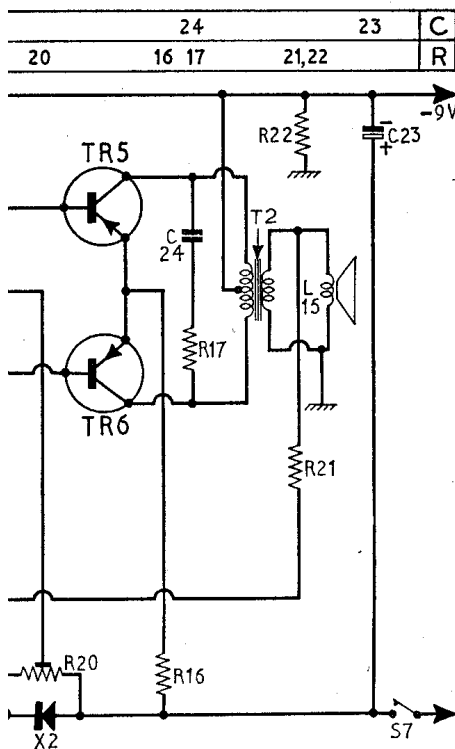
TR5, TR6.—In the event of the replacement of transistors TR5 or TR6, whether they are OC78's or OC81's, being necessary, both transistors must be replaced with a matched pair.

Removing Chassis.—Remove the control knobs (recessed grub screws). Lay the receiver face down and remove the screws which secure the two wooden wedges to the inside of the cabinet, one below each end of the chassis. Ensure that the tuning gang is turned to maximum capacitance to prevent the possibility of the vanes fouling the speaker magnet on withdrawal. Ease the tuning scale and panel from the recess in the top of the case and withdraw the chassis to the limit of the speaker and external aerial socket leads.

Switches.—S1-S7 (S1-S6 in the case of serial numbers 26,705-36,546) are the waveband and on/off switches which are ganged in a rotary unit secured to the chassis frame. Our illustrations of the switch contacts are drawn as seen when viewed from below looking over the foil side of the chassis.



Rear view of the vertical chassis of the second main version, seen in the same position as those of the two other versions. Its range of serial numbers is shown against the background of the battery compartment.



Resistors

R1	33kΩ	F5
R2	8.2kΩ	E5
R3	3.9kΩ	E5
R4	82kΩ	F5
R5	8.2kΩ	E5
R6	560Ω	E5
R7	1kΩ	E5
R8	5kΩ	D4
R9	3.9kΩ	E4
R10	33kΩ	F4
R11	8.2kΩ	F4
R12	560Ω	F4
R13	560Ω	F5
R14	—	†
R15	—	†
R16	5.6Ω	F5
R17	100Ω	F5
R18	—	†
R19	5.6Ω	F4
R20	100Ω	F5
R21	47Ω	F4
R22	3.9kΩ	F5

Capacitors

C1	30pF	E5
C2	196pF	E4
C3	40pF	D6
C4	0.04μF	F5
C5	0.02μF	E5
C6	30pF	E4
C7	110pF	E4
C8	160pF	F4
C9	250pF	F5
C10	110pF	F4
C11	10μF	F5
C12	58pF	F5
C13	0.1μF	F4
C14	250pF	F5
C15	18pF	E5
C16	0.04μF	E5
C17	250pF	E5
C18	0.02μF	E4
C19	0.02μF	D4
C20	2μF	F4
C21	100μF	F4
C22	100μF	F5
C23	50μF	F4
C24	0.25μF	F5

Coils & Transformers

L1	—	F6
L2	—	D6
L3	—	F6
L4	—	E6
L5	—	D6
L6	—	F6
L7	—	F6
L8	—	F6
L9	—	F5
L10	—	F5
L11	—	F5
L12	—	F5
L13	—	E5
L14	—	E5
L15	—	—
T1	—	F5
T2	—	F5

Miscellaneous

S1-S7	—	—
X1	OA70	E4
X2	OA81*	F5

*Or OC78 with collector and base short-circuited.
†No component.

The component numbers in this service sheet correspond with those used in the receiver manufacturer's service manual.

ADDITIONAL NOTES