ALBA Model CR25

General Description: A portable A.M./F.M. radio and cassette tape recorder for operation on mains or battery supplies. A microphone is provided together with sockets for external signals, earphone and remote control.

Mains Supply: 240V, 50Hz.

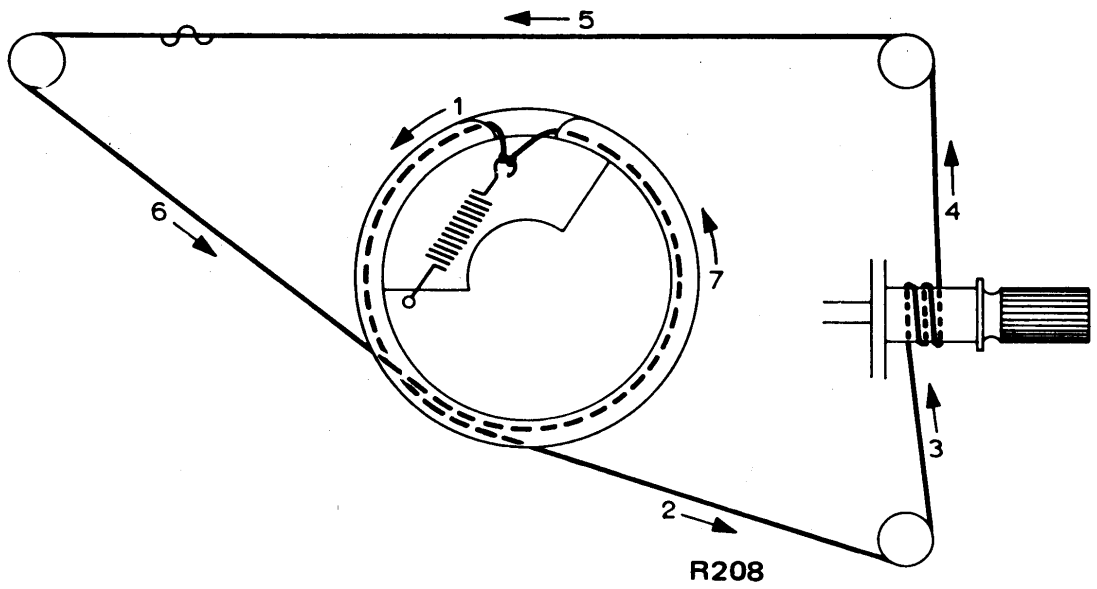
Fuses: 1A (mains); 50mA (H.T.).

Batteries: 6V (4×HP11 or equivalent).

Wavebands: M.W. 535–1,605kHz; F.M. 88–108MHz.

CrO_2 Tape: when a chromium dioxide tape in a cassette of the correct type is inserted, the necessary correction network is automatically switched into circuit.

Loudspeaker: 8Ω impedance.



(R208) Drive Cord—Model CR25

Transistors:

Q1	2SC1342	Q101	2SC732
Q2	2SC785	Q102	2SC733
Q3	2SC380A	Q103	2SC733
Q4	2SC380A	Q104	2SC733
Q5	2SC380A	Q105	2SB365
Q6	2SC380A	Q106	2SB365
Q7	2SC380A	Q107	2SC733

Diodes:

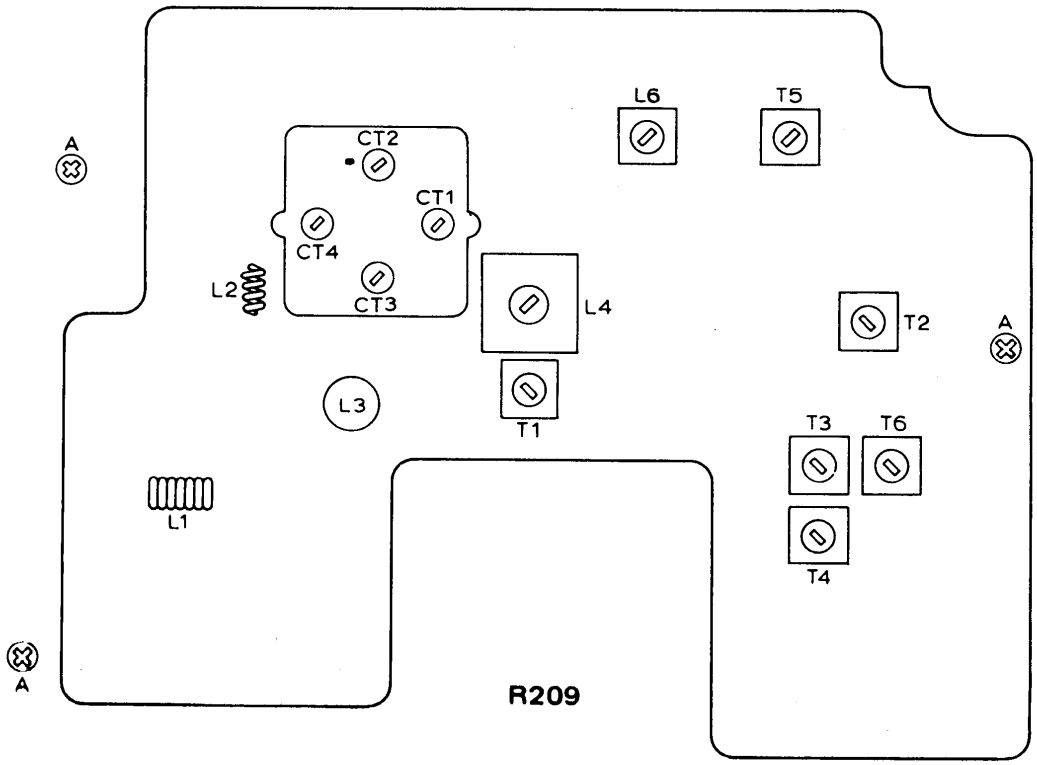
D1	1S2687	D102	WG1010A
D2	HV80	D103	WG1010A
D3	1N60	D104	SR1K–1
D4	1N60	D105	SR1K–1
D5	EYV–320D1R2J	D106	SR1K–1
D6	1N60	D107	SR1K–1
D101	WG1010A		

Dismantling: To gain access to the batteries, press in the knurled portion of the battery cover and slide in the direction of the arrow. To remove cabinet back, take out the two fixing screws at bottom left and right of back moulding, noting that movement will be restricted by the single lead to the telescopic aerial which it will be convenient to unsolder. At this stage, alignment may be carried out without further dismantling.

To remove the R.F./I.F. printed circuit board and cord drive assembly, pull off the tuning knob and A.M./F.M. button. Then remove the three screws marked 'A' on top layout diagram which hold the assembly to the casing. The complete assembly can be removed at this stage to the extent of the three interconnecting leads. Note that it will be necessary to press the cluster of connecting leads (from the audio board to the mains transformer and loudspeaker) away from the R.F./I.F. board in order to remove this assembly.

The audio board can be folded back for restricted access to the component side by pulling off the Radio/Tape button and removing the screws and washers securing it to the mechanical assembly (two of these screws also securing the screening panel in position), then unsoldering the lead to the battery positive terminal and the two leads to the motor. Unsoldering the leads to the volume and tone controls will give additional freedom of movement of the board.

To remove the A.F. board complete with the mechanical assembly, pull off the Volume, Tone and Radio/Tape buttons, unsolder the leads to the battery positive and the motor. Then remove the two small (red painted) screws securing the assembly to the front casing—one is on the left adjacent to (and below) the ferrite rod and the other is on the right adjacent to the Eject button. The complete assembly may then be eased out to the extent of connecting leads.



(R209) Alignment Adjustments—Model CR25

Transistor Voltages

R.F./I.F. Panel:

	A.M.			F.M.		
	c	*b*	*e*	*c*	*b*	*e*
Q1	—	—	—	0	3·6	4·3
Q2	—	—	—	0	3·6	4·3
Q3	1·6	3·8	4·4	1·6	3·7	4·3
Q4	0·8	3·8	4·4	0·8	3·7	4·3
Q5	0	3·8	4·4	0	3·7	4·3
Q6	0	3·8	4·2	0	3·7	4·1
Q7	0	3·7	4·2	—	—	—

The above voltages are negative with respect to R.F.–I.F. circuit board (positive) earth and were obtained under no-signal conditions.

Audio Panel:

	c	*b*	*e*
Q101	1·2	0·6	VL
Q102	3·5	1·2	0·6
Q103	1·6	0·6	VL
Q104	5·0	1·6	1·0
Q105	0	5·7	5·9
Q106	0	5·7	5·0

The above voltages are positive with respect to (negative) circuit board earth and were obtained under no-signal conditions.

Alignment

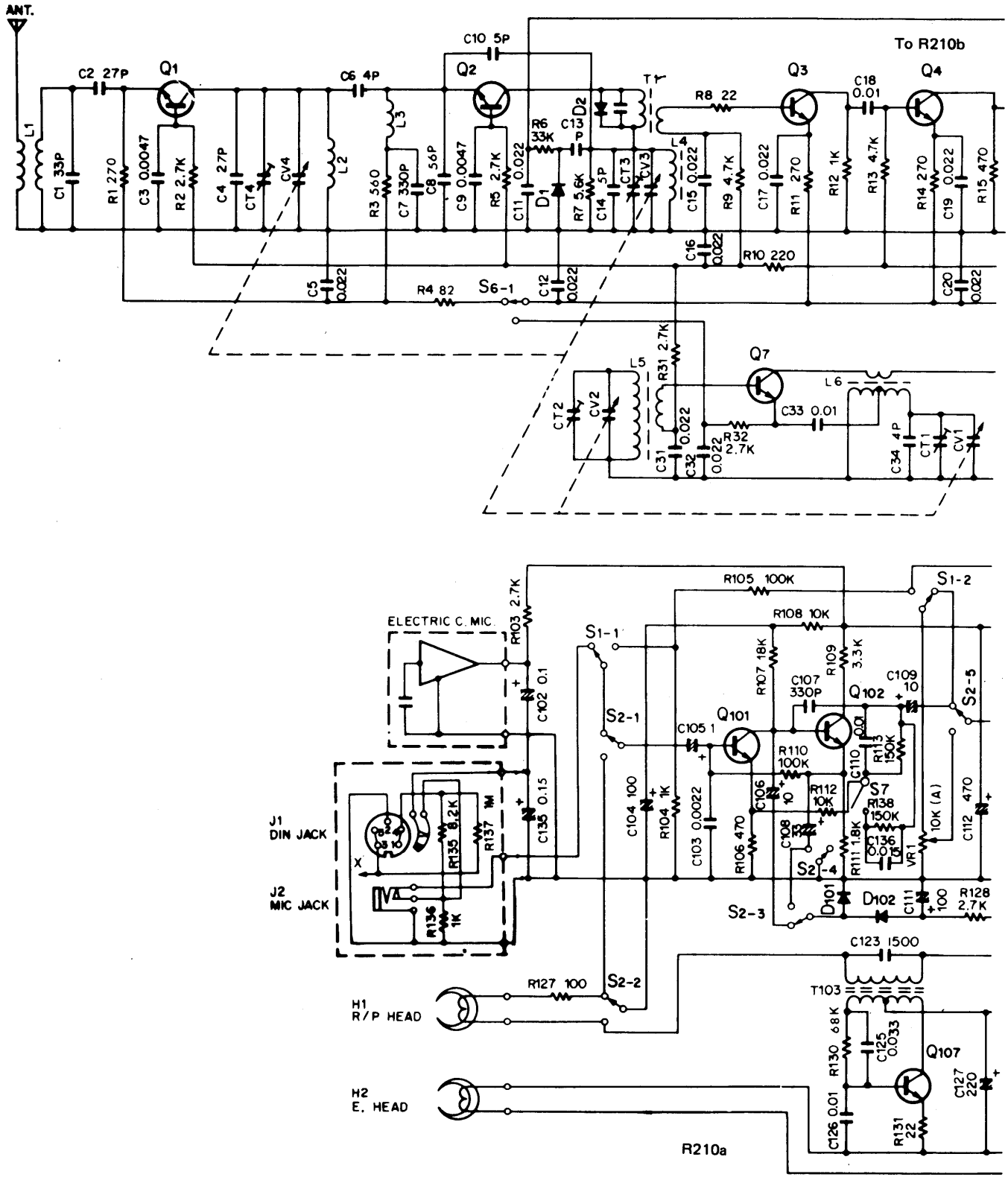
Access to all cores, coils and trimmers is obtained on removing the cabinet back, as described under 'Dismantling'. Test signal inputs should be kept as low as possible consistent with useful readings to avoid overload and the output indicator should be of the highest available sensitivity. Test signal modulation should be 400Hz 30 per cent for A.M. circuits and 22·5kHz deviation for F.M. circuits.

A.M. Alignment: Connect high impedance voltmeter across loudspeaker (it will be convenient to make the connection via the earphone socket J3). Turn volume control to maximum and tone control to minimum cut position. Couple signal generator to a standard transmitting loop, placed near to, and coaxial with, the ferrite rod aerial. Switch receiver to A.M., and tune to extreme low frequency end of scale.

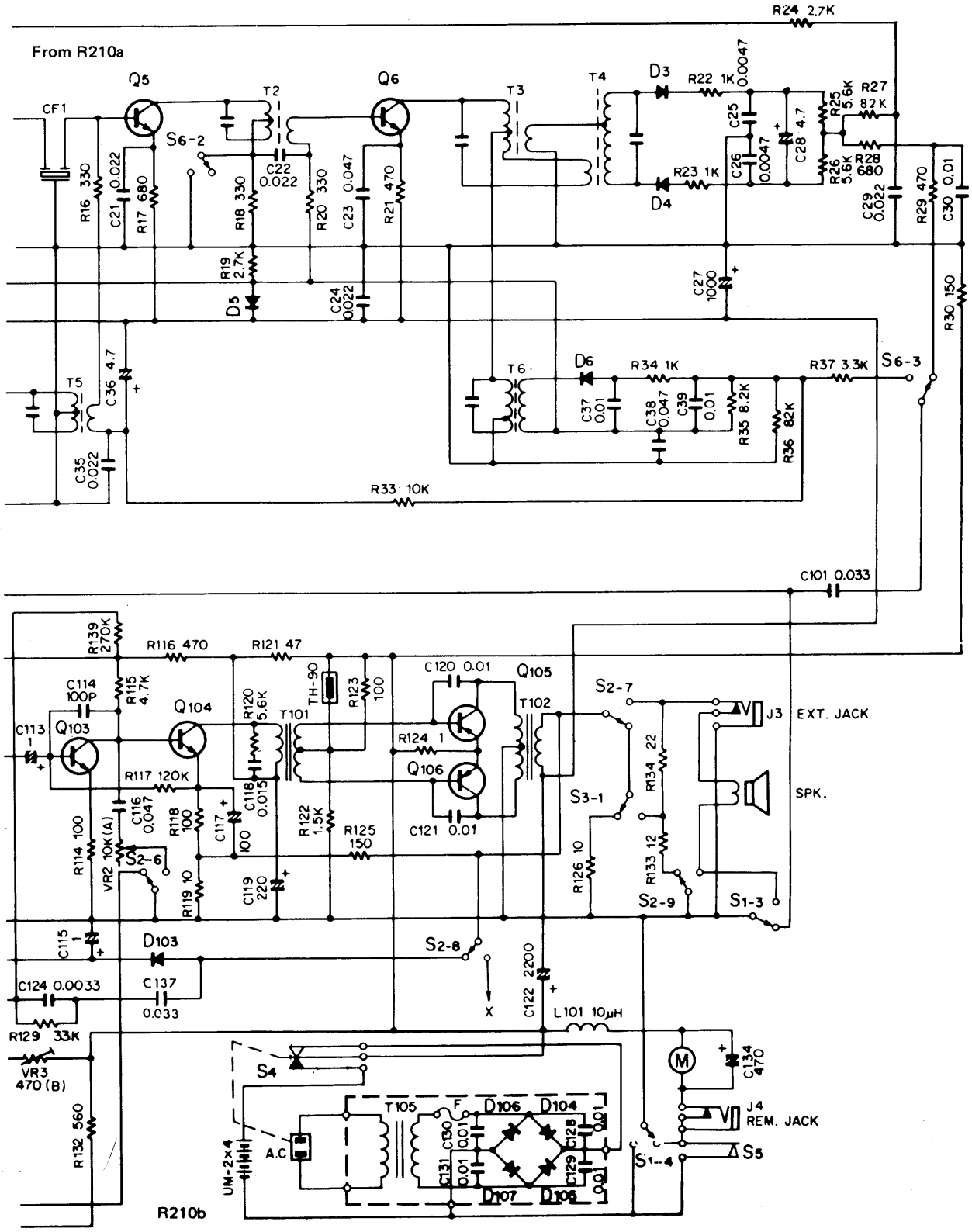
Inject signal of 470kHz and adjust cores of T6/T2 and T5 for maximum output. Repeat these adjustments for optimum sensitivity.

Tune receiver to 1,600 mark, inject signal of 1,600kHz and adjust oscillator trimmer CT1 for maximum output. Tune receiver to 530 mark, inject signal of 530kHz and adjust oscillator coil L6 for maximum output.

Tune receiver to 600 mark, inject signal of 600kHz and adjust L5 on ferrite rod for maximum output. Tune receiver to 1,400 mark, inject signal of 1,400kHz and adjust aerial trimmer CT2 for maximum output.



(R210a) Circuit Diagram—Model CR25. Receiver (*Part*)



(R210b) Circuit Diagram—Model CR25. Recorder (*Continued*)

Repeat the above adjustments to obtain maximum sensitivity and optimum tracking. Remove signal generator and output meter.

F.M. Alignment: Connect oscilloscope between C101 and earth (connection to C101 is available at corner cut out of screening panel adjacent to ferrite rod aerial). Connect F.M. sweep/marker generator between telescopic aerial input lead and earth.

Switch to F.M., turn volume control to minimum and tune to extreme low frequency end of scale. Inject signal of 10·7 MHz and adjust the cores of T4, T3 and T1 for symmetrical S-curve centred on 10·7 MHz.

Tune receiver to 88 mark, inject signal of 88 MHz and adjust oscillator coil L4 for maximum output. Tune receiver to 108 mark, inject signal of 108 MHz and adjust oscillator trimmer CT3 for maximum output.

Tune receiver to 88 mark, inject signal of 88 MHz and adjust L2, by carefully adjusting the spacing of the turns, for maximum output. Tune receiver to 108 mark, inject signal of 108 MHz and adjust trimmer CT4 for maximum output.

Repeat these adjustments.

Circuit Diagram Notes

Switch Positions: RADIO/TAPE (SP-1 to S1-4) in TAPE position.
RECORD/PLAY (S2-1 to S2-9) in RECORD position.
MONITOR (S3-1) in OFF position.
A.M./F.M. (S6-1 to S6-3) in F.M. position.
NORMAL/CrO_2 (S7) in CrO_2 position.
A 1 A fuse is fitted in series with T105 primary and A.C. socket.