

ALBA 210

3-VALVE BATTERY SET

A SIMPLE 3-valve battery-operated chassis is fitted in the Alba 210 receiver, the valve arrangement consisting of a pentode H.F. amplifier, a triode detector and a pentode output valve. Three alternative aerial tapplings are provided.

CIRCUIT DESCRIPTION

Three alternative aerial input connections to coupling coils L1, L2. A1 is taken via series condenser C1 to tapping on L1, A2 goes direct to tapping, and A3 is taken direct to top end of L1.

Single tuned circuit comprising L3, L4 and C7 precedes pentode H.F. amplifier (V1, Mullard metallised SP2) operating with zero grid bias.

Tuned-secondary transformer coupling by L5, L6, L9, L10 and C10 to triode detector (V2, Mullard metallised PM1HL) operating on grid leak system with C3 and R1. Reaction is applied from anode by coils L7, L8 and controlled by variable condenser C9. H.F. by-passing in anode circuit by condenser C4.

Parallel fed transformer coupling by R2, C5 and T1 to output pentode (V3, Mullard PM22A). Tone correction in anode circuit by fixed condenser C6.

DISMANTLING THE SET

Removing Chassis.—If it is necessary to remove the chassis from the cabinet, first remove the back and the batteries. Then remove the three control knobs (recessed grub screws) and the four bolts (with washers) holding the chassis to the bottom of the cabinet.

The chassis can now be withdrawn to the extent of the speaker leads, which is sufficient for normal purposes. The chassis should be tilted as it is taken out, so that the tuning scale clears the speaker.

When replacing, note that the knob with the red and white dots should be placed on the spindle of the wave-change switch.

To free the chassis entirely, unsolder the leads to the speaker transformer terminal panel.

Removing Speaker.—The speaker can be removed from the cabinet by removing the nuts and washers from the four screws holding it to the sub-baffle. *When replacing,* see that the transformer is pointing to the top right-hand corner of the cabinet, when looking from the back.

COMPONENTS AND VALUES

Condensers		Values (μF)
C1	Aerial series condenser ..	0.00015
C2	H.F. trans. M.W. pri. blocking	Very low
C3	V2 grid condenser ..	0.00015
C4	V2 anode H.F. by-pass ..	0.00015
C5	L.F. coupling to T1 ..	0.1
C6	Tone corrector ..	0.005
C7†	Aerial circuit tuning ..	0.0005
C8†	Aerial circuit trimmer ..	—
C9†	Reaction control ..	0.0003
C10†	H.F. transformer tuning ..	0.0005
C11†	H.F. transformer trimmer ..	—

† Variable. ‡ Pre-set.

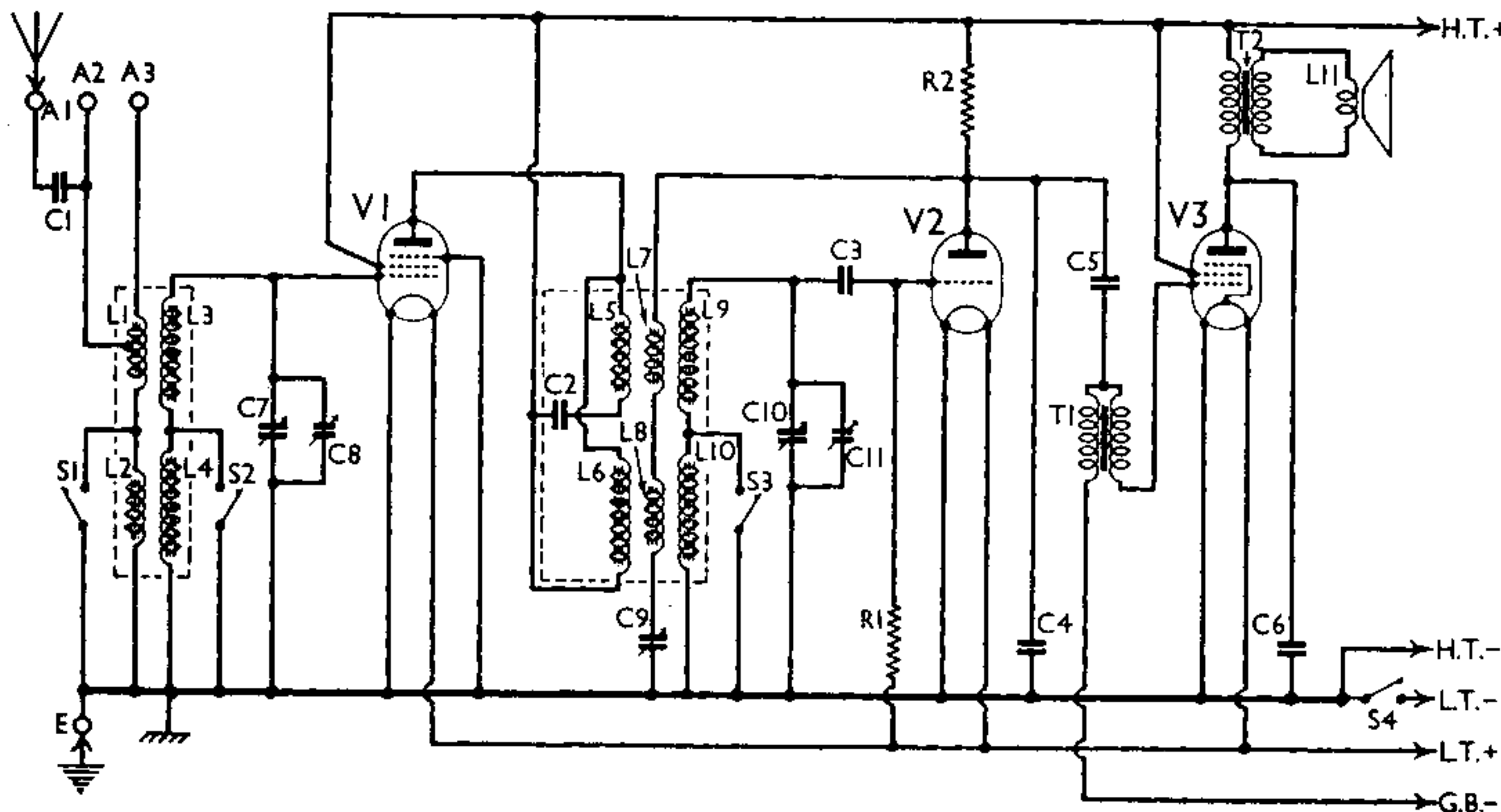
Resistances		Values (ohms)
R1	V2 grid leak	2,000,000
R2	V2 anode load	25,000

Other Components		Approx. Values (ohms)
L1	Aerial coupling coils ..	0.8
L2		29.0
L3		0.8
L4	Aerial tuning coils ..	8.5
L5		0.1
L6	H.F. transformer primary	38.0
L7		2.7
L8	Reaction coils, total ..	2.7
L9		1.5
L10	H.F. transformer secondary	8.5
L11		2.2
T1	Intervalve trans. { Pri. ..	800.0
		Sec. ..
T2	Speaker input trans. { Pri. ..	700.0
		Sec. ..
S1-S3	Waveband switches	—
S4	L.T. switch	—

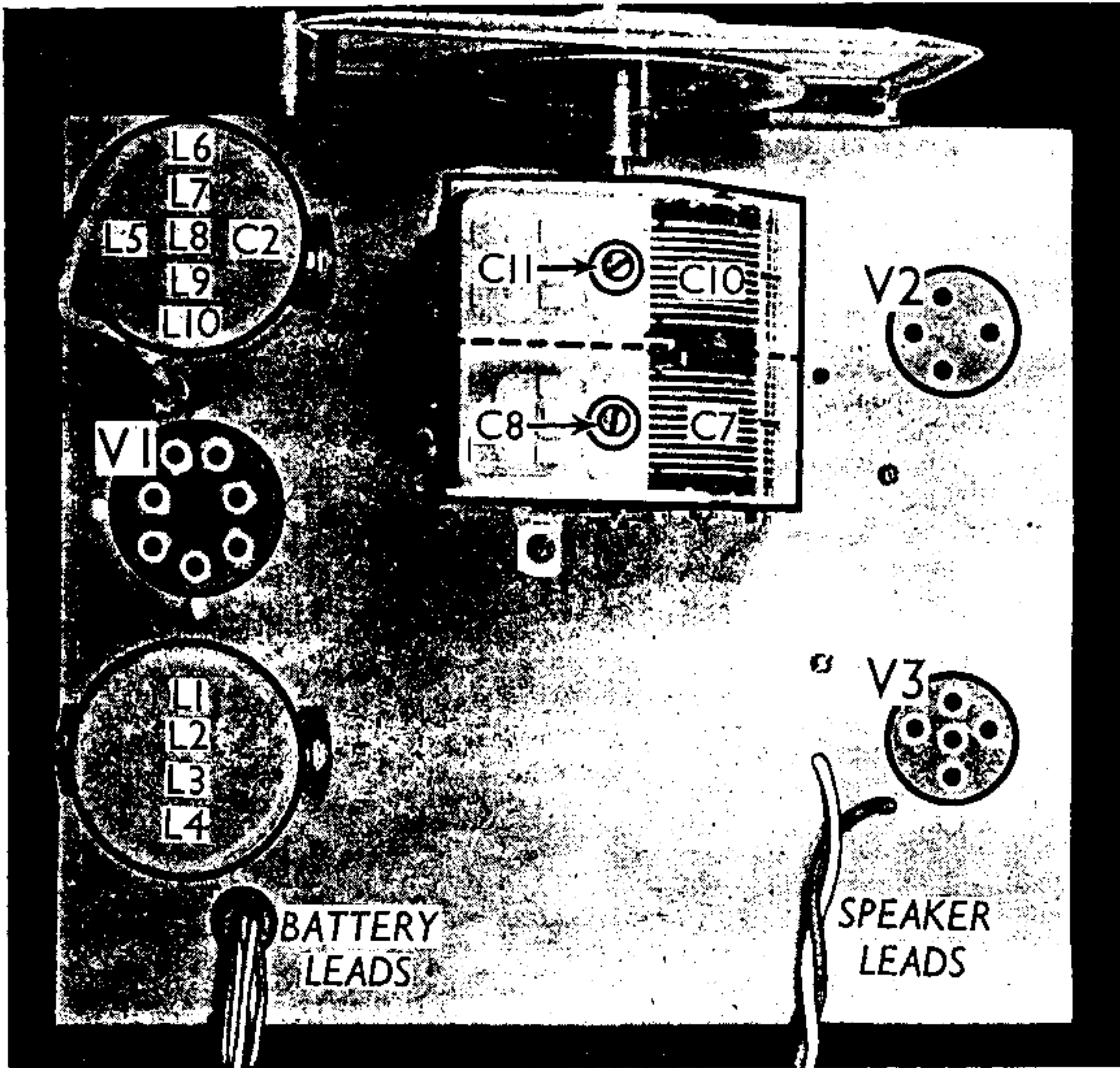
VALVE ANALYSIS

Valve voltages and currents given in the table (p. III) are those measured in our receiver when it was operating from a new H.T. battery reading 114 V on the H.T. section. The reaction control was at minimum and there was no signal input.

Voltages were measured on the 1,200 V scale of an Avometer, with chassis as negative.



Circuit diagram of the Alba 210 battery receiver. Note that iron-cored coils are used throughout. There are three alternative aerial sockets.



Plan view of the chassis. The L5-L10 coil unit also contains the fixed condenser C2.

primary of the internal speaker transformer, T2.

Batteries.—L.T., Economic 2 V 20 AH glass cased cell. H.T. and G.B., Drydex Yellow Triangle combined 108 V H.T. and 6 V G.B. battery, type S49.

Battery Leads and Voltages.—Black-lead, spade tag, L.T. negative; Red lead, spade tag, L.T. positive 2 V; Green lead, green plug, H.T. negative (and G.B. positive), Blue lead, blue plug, H.T. positive 108 V; White lead, white plug, G.B. negative 3 V.

Valve	Anode Volts	Anode Current (mA)	Screen Volts	Screen Current (mA)
V1 SP2	114	1.8	114	0.5
V2 PM1HL	70	1.6	—	—
V3 PM22A	110	4.6	114	1.9

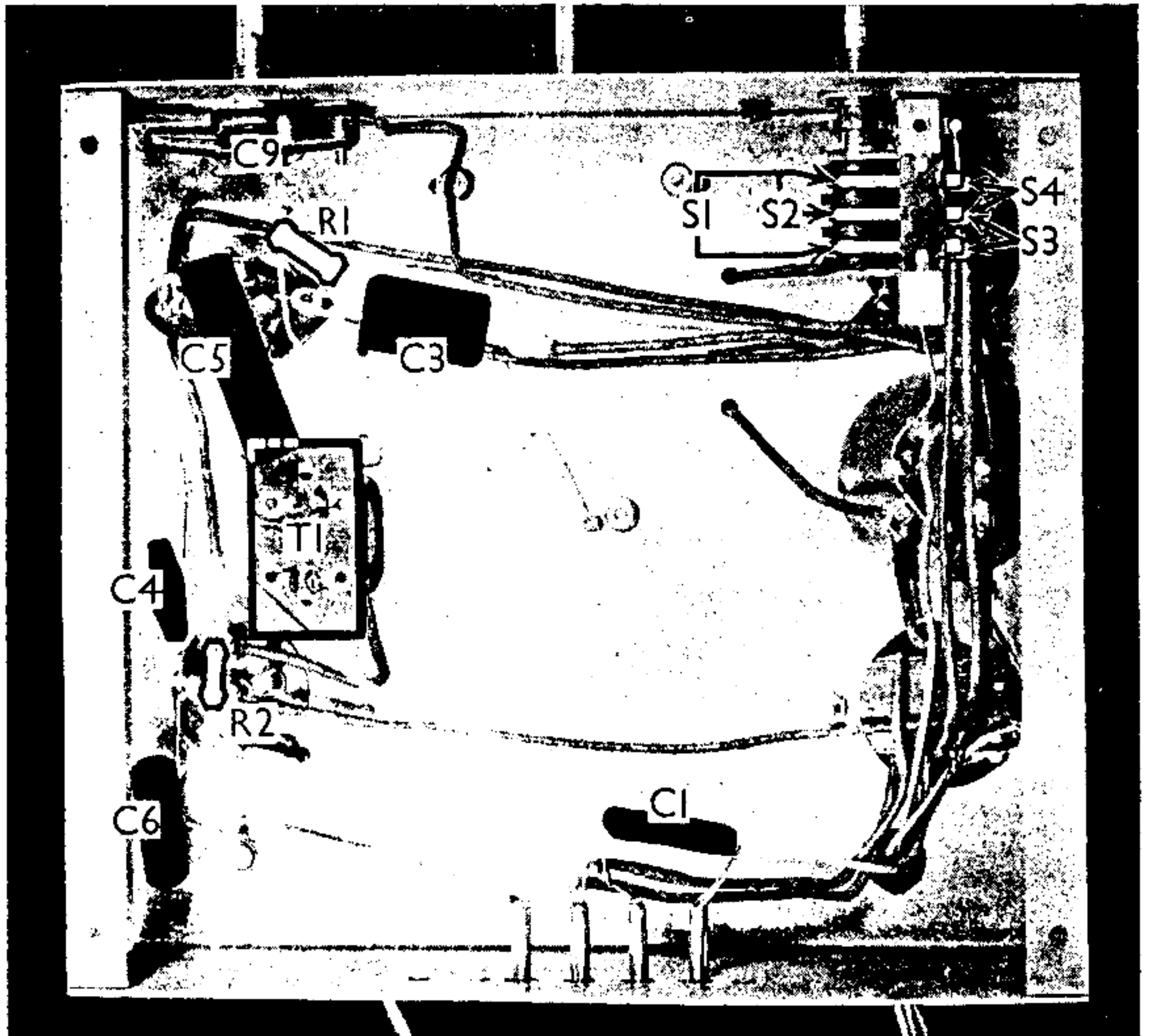
GENERAL NOTES

Switches.—S1-S3 are the waveband switches and S4 the L.T. switch. They are ganged in a single unit beneath the chassis, seen in our under-chassis view. The table below gives the switch positions for the various control settings, O indicating open, and C, closed.

Switch	Off	M.W.	L.W.
S1	O	C	O
S2	C	C	O
S3	O	C	O
S4	O	C	C

Coils.—These are in two screened units on the chassis deck. All the coils are iron-cored, and it should be noted that the L5-L10 coil unit also contains the fixed condenser C2.

External Speaker.—There is no provision made for this, but a high resistance type could be connected across the



Under-chassis view. S1 and S2 utilise the top bank of contacts in the switch unit, while S3 and S4 use the lower bank. One contact is common in each case.