

NUMBER 111

'TRADER' SERVICE SHEETS

ALBA 212 RECEIVER
AND
430 RADIO-GRAMOPHONE

the left and do not forget the earthing lead (see column two).

COMPONENTS AND VALUES

Resistances		Values (ohms)
R1	V1 C.G. decoupling	5,000
R2	V2 grid leak	2,000,000
R3	V2 S.G. H.T. feed	250,000
R4	V2 anode load	100,000
R5	Automatic G.B. resistances {	400
R6		1,000
R7	V1 gain control	25,000

A THREE-VALVE chassis for battery operation is fitted in the Alba 212 receiver, the valve arrangement consisting of a variable-mu pentode H.F. amplifier, a pentode detector and a pentode output stage. Provision is made for using a gramophone pick-up, and automatic G.B. is incorporated.

An almost identical chassis is employed in the 430 radio-gramophone made by the same firm.

CIRCUIT DESCRIPTION

Aerial input via coupling coils L1, L2 and single tuned circuit L3, L4, C10 to variable-mu pentode H.F. amplifier (V1, Mullard metallised VP2). Gain control by variable potentiometer R7 which varies G.B. applied.

Tuned-secondary transformer coupling by L5, L8, L9, C13 to H.F. pentode detector (V2, Mullard metallised SP2) operating on grid leak system with C3 and R2. Reaction is applied from anode by coil L6 and controlled by variable condenser C12. Provision for connection of gramophone pick-up in grid circuit by switch S6. S9 breaks V1 filament circuit on gramophone and thus prevents radio break-through.

Parallel-fed auto-transformer coupling by R4, C7 and T1 to output pentode

(V3, Mullard PM22A). Tone correction in anode circuit by fixed condenser C9.

G.B. voltages for V1 and V3 are obtained automatically from the voltages dropped along resistances R5 and R6 in common H.T. negative line.

DISMANTLING THE SET

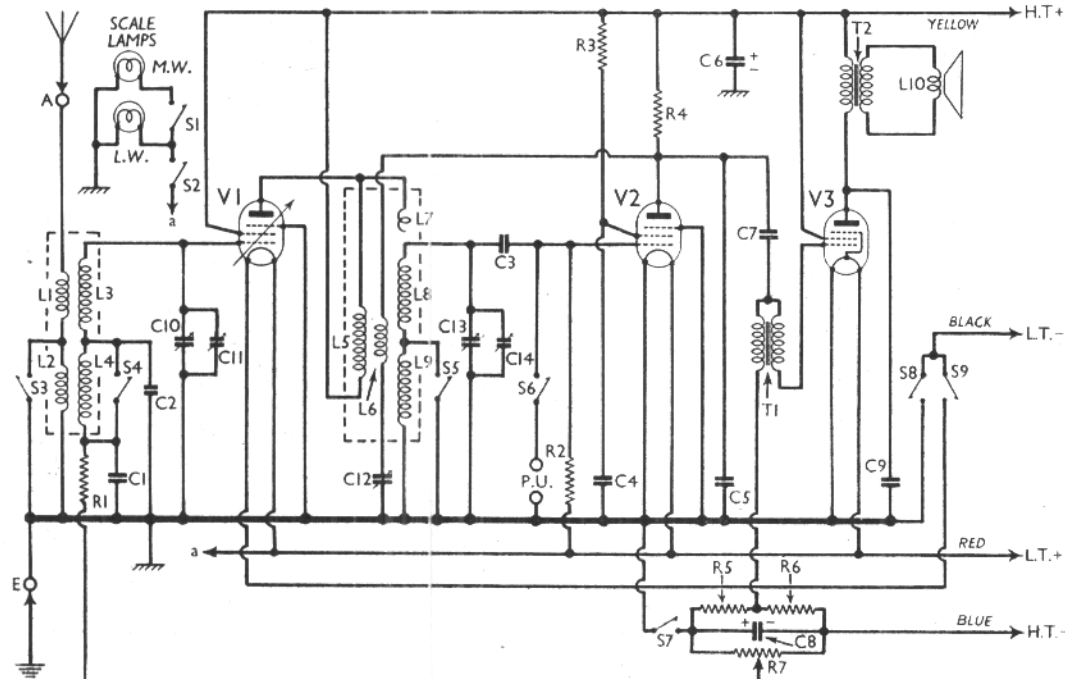
Removing Chassis.—If it is necessary to remove the chassis from the cabinet, remove the four control knobs (recessed grub screws) and the four bolts (with washers) holding the chassis to the bottom of the cabinet. The chassis can now be withdrawn to the extent of the speaker leads, which is sufficient for normal purposes. *When replacing*, note that some of the control knobs are marked with their purpose so that they must be placed on the correct spindles.

To free the chassis entirely, unsolder the speaker leads and remove the lead earthing the frame of the speaker. *When replacing*, do not forget the yellow earthing lead to the speaker, which is secured between the input transformer and the frame.

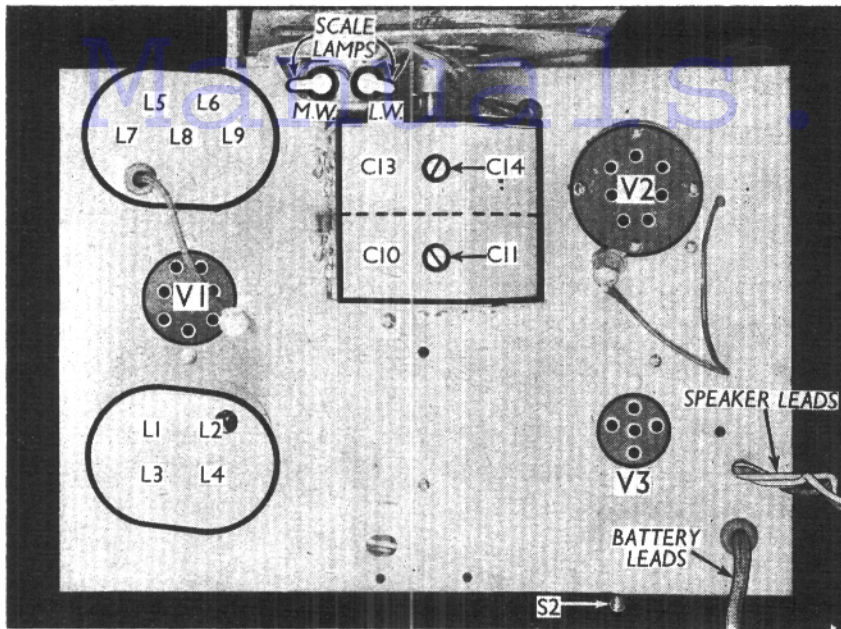
Removing Speaker.—To remove the speaker from the cabinet, remove the nuts and spring washers from the four bolts holding it to the sub-baffle. *When replacing*, see that the transformer is on

Condensers		Values (μF)
C1	V1 C.G. decoupling	0.1
C2	Aerial circuit L.W. trimmer ..	Very low
C3	V2 C.G. condenser	0.0001
C4	V2 S.G. by-pass	0.1
C5	V2 anode H.F. by-pass	0.0001
C6*	H.T. reservoir	2.0
C7	L.F. coupling to T1	0.25
C8*	Auto G.B. circuit by-pass ..	25.0
C9	Tone corrector	0.005
C10†	Aerial circuit tuning	0.0005
C11‡	Aerial circuit trimmer	—
C12†	Reaction control	0.0005
C13†	H.F. transformer tuning	0.0005
C14‡	H.F. transformer trimmer ..	—

* Electrolytic. † Variable. ‡ Pre-set.



Circuit diagram of the Alba 212 3-valve battery receiver. The 430 radio-gramophone has a similar circuit. S2 is a master switch controlling the scale lamps. Automatic grid bias is incorporated.



Plan view of the chassis. S2 at the rear is the scale lamp master switch for L.T. battery economy.

are indicated in our under-chassis view. Some contacts in the unit are not used, while others are common to two switches. The table (col. 2) gives the switch positions for the various control settings, O indicating open, and C, closed.

S2 is a Q.M.B. single-pole shorting switch at the rear of the chassis, which is closed in the down position, and switches the scale lamps into circuit. It is merely provided for battery economy.

Coils.—The tuning coils **L1-L9** are in two screened units on the chassis deck, the screens of which are easily removable.

Scale Lamps.—There are two of these, both of the Osram M.E.S. type, rated at 2.5 V, 0.2 A. The "L.W." lamp lights up in all positions of the switch except "off." The M.W. lamp lights up on M.W. (and Gram.) and extends the "Searchlight" from the L.W. scale to the M.W. scale.

External Speaker.—There is no provision for this, but a high resistance type could be connected across the tags on the speaker transformer to which the black and white leads from the chassis are joined.

Batteries.—Those supplied with our set were: L.T., Economic 2 V 45 AH glass-cased mass type cell; H.T., Drydex Yellow Triangle 120 V, type S39.

Battery Leads and Voltages.—Black, spade tag, L.T.—; Red, spade tag, L.T.+2 V; Blue, black plug, H.T.—; Yellow, red plug, H.T.+120 V. Automatic G.B. is provided in the set.

Radiogram Model.—This has a similar chassis, and volume control on "Gram." is provided by a potentiometer on the pick-up assembly itself.

Condenser C2.—This is a small fixed L.W. trimmer formed of tinned copper wire twisted over another insulated wire.

GENERAL NOTES

Switches.—The wavechange, battery and scale lamp switches **S1** and **S3-S9** are ganged in a single unit beneath the chassis. The contacts of the individual switches

Switch	Off	M.W.	L.W.	Gram.
S1	C	C	O	C
S3	O	C	O	O
S4	O	C	O	C
S5	O	C	O	O
S6	O	O	O	C
S7	O	C	C	C
S8	O	C	C	O
S9	O	C	C	O

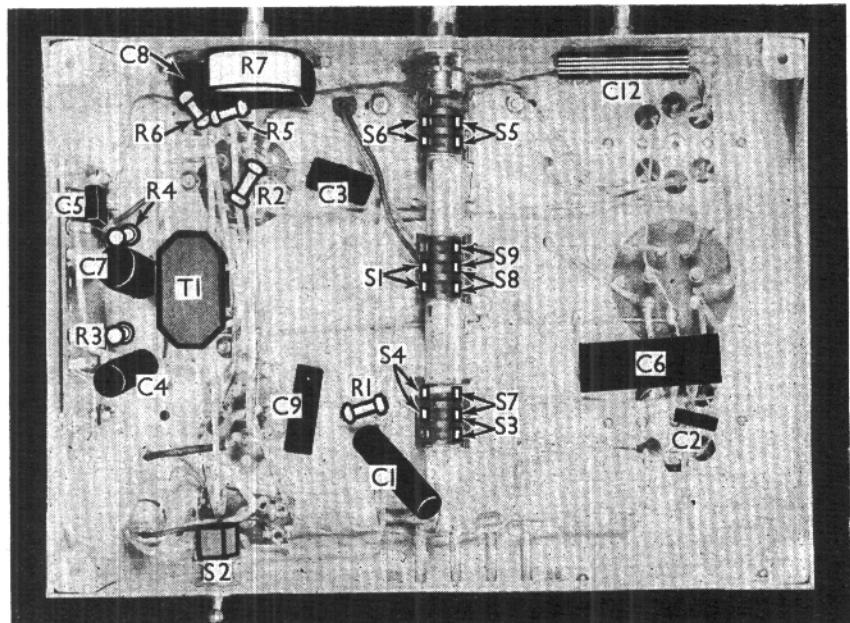
Other Components		Approx. Values (ohms)
L1	Aerial coupling coils	9.0
L2		100.0
L3		3.5
L4		12.0
L5	H.F. transformer primary	250.0
L6		6.0
L7	Small coupling	Very low
L8	H.F. transformer secondary	3.5
L9		12.0
L10	Speaker speech coil	2.0
T1	Intervalve trans. { Pri. ..	900.0
		Sec. ..
T2	Speaker input trans. { Pri. ..	700.0
		Sec. ..
S1	M.W. scale lamp switch	—
S2	"Searchlight" master switch	—
S3-S5	Waveband switches	—
S6	Gram. pick-up switch	—
S7	H.T. circuit switch	—
S8	V2, V3 L.T. switch	—
S9	V1 L.T. switch	—

VALVE ANALYSIS

Valve voltages and currents given in the table below were measured with the receiver operating from a new H.T. battery reading 128 V and with the volume control at maximum and the reaction control at minimum. There was no signal input.

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

Valve	Anode Volts	Anode Current (mA)	Screen Volts	Screen Current (mA)
V1 VP2	114	2.2	115	0.6
V2 SP2	40	0.6	45	0.2
V3 PM22A	110	4.3	115	1.3



Under-chassis view. The contacts of the various switches are clearly marked, some being common to two switches.