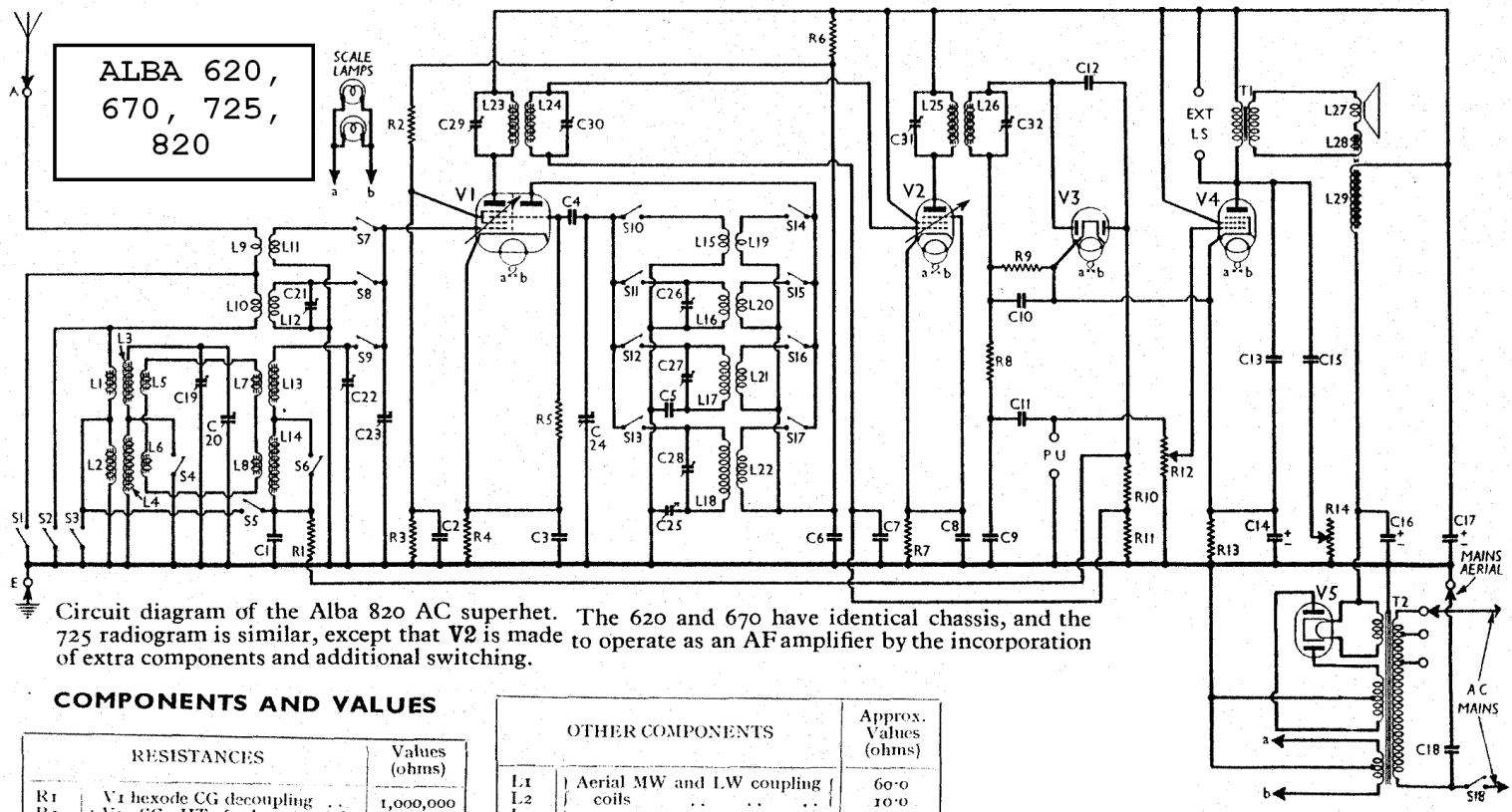
ALBA 620, 670, 725, 820



Circuit diagram of the Alba 820 AC superhet. The 620 and 670 have identical chassis, and the 725 radiogram is similar, except that **V2** is made to operate as an AF amplifier by the incorporation of extra components and additional switching.

COMPONENTS AND VALUES

	RESISTANCES	Values (ohms)
R1	V1 hexode CG decoupling	1,000,000
R2	V1 SG HT feed potential divider resistances	10,000
		25,000
R3	V1 fixed GB resistance	200
R4	V1 osc. CG resistance	25,000
R5	V1 SG and osc. anode HT feed	13,000
R6	V2 fixed GB resistance	150
R7	IF stopper	50,000
R8	V3 signal diode load	500,000
R9	V3 AVC diode load resistances	500,000
R10		500,000
R11	Manual volume control	500,000
R12	V4 GB and AVC delay	150
R13	Variable tone control	50,000
R14		

	CONDENSERS	Values (μF)
C1	V1 hexode CG decoupling	0·1
C2	V1 SG decoupling	0·1
C3	V1 cathode by-pass	0·1
C4	V1 osc. CG condenser	0·0001
C5	Osc. circuit MW tracker	0·002
C6	V1 osc. anode decoupling	0·1
C7	V2 CG decoupling	0·1
C8	V2 cathode by-pass	0·1
C9	IF by-pass condensers	0·0002
C10		0·0002
C11	AF coupling to V4	0·005
C12	Coupling to V3 AVC diode	0·0002
C13	Fixed tone corrector	0·005
C14*	V4 cathode by-pass	25·0
C15	Part of variable tone control	0·05
C16*	HT smoothing	6·0
C17*		6·0
C18	Mains aerial coupling	0·0001
C19‡	Band-pass pri. MW trimmer	0·00003
C20†	Band-pass primary tuning	—
C21‡	Aerial SW2 trimmer	0·00003
C22‡	Band-pass sec. MW trimmer	0·00003
C23†	SW aerial and band-pass secondary tuning	—
C24†	Oscillator circuit tuning	—
C25‡	Osc. circuit LW tracker	0·0007
C26‡	Osc. circuit SW2 trimmer	0·00003
C27‡	Osc. circuit MW trimmer	0·00003
C28‡	Osc. circuit LW trimmer	0·00003
C29‡	1st IF trans. pri. tuning	—
C30‡	1st IF trans. sec. tuning	—
C31‡	2nd IF trans. pri. tuning	—
C32‡	2nd IF trans. sec. tuning	—

*Electrolytic. † Variable. ‡ Pre-set.

	OTHER COMPONENTS	Approx. Values (ohms)
L1	Aerial MW and LW coupling coils	60·0
L2		10·0
L3	Band-pass primary coils	1·6
L4		18·5
L5	Band-pass coupling coils, total	47·0
L6		
L7	Band-pass coupling coils, total	45·0
L8		
L9	Aerial SW1 coupling coil	0·1
L10	Aerial SW2 coupling coil	0·2
L11	Aerial SW1 tuning coil	Very low
L12	Aerial SW2 tuning coil	0·1
L13	Band-pass secondary coils	1·6
L14		21·0
L15	Osc. circuit SW1 tuning coil	0·05
L16	Osc. circuit SW2 tuning coil	0·1
L17	Osc. circuit MW tuning coil	2·5
L18	Osc. circuit LW tuning coil	13·0
L19	Oscillator SW1 reaction	17·0
L20	Oscillator SW2 reaction	0·4
L21	Oscillator MW reaction	44·0
L22	Oscillator LW reaction	87·0
L23	1st IF trans. Pri.	33·0
L24	1st IF trans. Sec.	33·0
L25	2nd IF trans. Pri.	33·0
L26	2nd IF trans. Sec.	33·0
L27	Speaker speech coil	1·9
L28	Hum neutralising coil	0·1
L29	Speaker field coil	1,200·0
T1	Speaker input trans. Pri., total	450·0
	Speaker input trans. Sec.	0·4
T2	Mains trans. Pri., total	24·0
	Mains trans. Heater sec.	0·05
	Mains trans. Rect. heat. sec.	0·1
	Mains trans. HT sec., total	470·0
S1-17	Waveband switches	—
S18	Mains switch, ganged R12	—

VALVE ANALYSIS

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 TH4	250	2·4	52	3·9
	Oscillator			
	112	5·0		
V2 VP4B	250	8·0	250	3·1
V3 2D4A	—	—	—	—
V4 PenA4	236	38·0	250	6·6
V5 IW4/350	310†	—	—	—

† Each anode, AC.

Valve voltages and currents given in the table above are those measured in our receiver when it was operating on mains of 225 V, using the 220 V tapping on the mains transformer. The receiver was tuned to the lowest wavelength on the medium band and the volume control was at maximum, but there was no signal input.

Voltages were measured on the 400 V scale of a model 7 Universal Avometer, chassis being negative.

GENERAL NOTES

Switches.—**S1-S17** are the waveband switches, ganged in two rotary units beneath the chassis. These are indicated in our under-chassis view and are shown in detail in the diagrams in column 3, where they are drawn as seen from the front of the underside of the chassis. The table (column 2) gives the switch positions for the four control settings, starting from fully anti-clockwise. A dash indicates *open* and **C**, *closed*.

S18 is the QMB mains switch, ganged with the volume control **R12.**

Coils.—**L1-L6; L7, L8, L13, L14; L17, L18, L21, L22;** and the IF transformers **L23, L24** and **L25, L26** are in five screened units on the chassis deck, the last two containing their trimmers.

L9, L11; L10, L12; L15, L19 and **L16, L20** are in four unscreened tubular units beneath the chassis.

External Speaker.—Two terminals are provided on the internal speaker transformer panel for a high impedance (about 8,000 Ω) external speaker.

Scale Lamps.—These are two Osram MES types, rated at 6·2 V, 0·3 A.

Condensers C16, C17.—These are two 6 μF dry electrolytics in a single carton beneath the chassis, having a common negative (black) lead. The red lead is the positive of **C16** and the yellow the positive of **C17.**

Chassis Divergencies.—Our chassis differs in several respects from the makers' original diagram. This shows **R5** returned

TABLE AND DIAGRAMS

Switch	SW1	SW2	MW	LW
S1	C			
S2		C		
S3			C	
S4	C		C	
S5	C			
S6			C	
S7	C			
S8		C		
S9			C	C
S10	C			
S11		C		
S12			C	
S13				C
S14	C			
S15		C		
S16			C	
S17				C

to chassis and no tone control circuit. The tone control components **C15, R14** are wired inside the cabinet to the speaker terminal strip and are therefore not shown in our chassis illustrations.

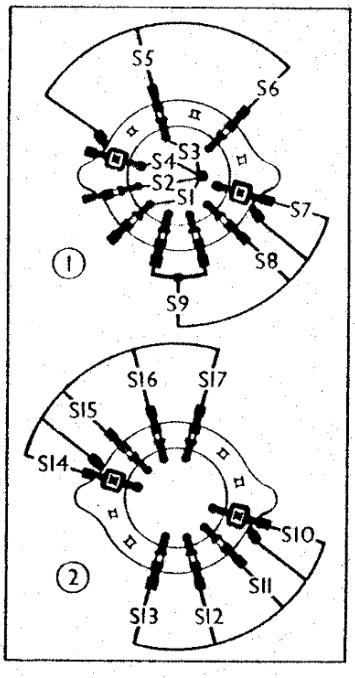
The values of the coil resistances in our chassis differ from those given by the makers, so that any discrepancies here may not indicate a fault, but merely that slightly different coils are in use.

The same applies to the resistances of the mains transformer windings.

MODEL 725 MODIFICATIONS

In the radiogram model 725 **V2** is switched to provide AF amplification for the pick-up. The modifications are as follows.

One pick-up socket goes to chassis, while the other goes to a fixed contact on an extra switch bank. The bottom of **L24** is disconnected from the AVC line and taken to the moving contact of the switch. The AVC line goes to four other fixed contacts of this switch. In the SW1 SW2, MW and LW positions, **L24** is connected to the AVC line, while in the gram position it is connected to the upper pick-up socket. The pick-up is thus fed into the grid circuit of **V2.**



Diagrams of the switch units, as seen from the front of the underside of the chassis.

In the anode circuit of **V2,** between the top of **L25** and the HT line a 5,000 Ω load resistance is inserted. The junction of **L25** and this resistance goes to one side of a 0·002 μF by-pass condenser, the other side of which goes to chassis. The junction of **L25** and the load resistance also goes to a 0·005 μF AF coupling condenser, the other side of which goes to one fixed contact of another rotary switch.

The junction of **C11** and **R12** is broken, and **R12** is taken to the moving contact of this second rotary switch. **C11** is taken to four fixed contacts of this switch. On SW1, SW2, MW and LW, **C11** is thus connected to **R12** as in our diagram, while on gram the AF coupling condenser goes to **R12, C11** being disconnected, and so muting radio.

CIRCUIT ALIGNMENT

IF Stages.—Connect signal generator between control grid (top cap) of **V1** and chassis, and feed in a 117·5 KC/S signal, with the receiver switched to MW. Now adjust **C32, C31, C30** and **C29** in turn for maximum output, reducing the input progressively as the circuits come into alignment. Re-check these settings.

RF and Oscillator Stages.—See that the scale pointer is horizontal when the gang is at maximum. If it is not, adjust it by means of the pointer clip on the drive spindle. The volume control should be set at maximum, and the signal generator connected to the **A** and **E** sockets.

MW.—Switch set to MW, tune to 250 m on scale, feed in a 250 m (1,200 KC/S) signal, and adjust **C27,** then **C22** and **C19,** for maximum output.

LW.—Switch set to LW, tune to 1,200 m on scale, feed in a 1,200 m (250 KC/S) signal, and adjust **C28** for maximum output, rocking the gang for optimum results.

Feed in a 1,900 m (157 KC/S) signal, tune it in, and adjust **C25** for maximum output, while rocking the gang.

SW2.—Switch set to SW2 (28-85 m), tune to 31 m on scale and feed in a 31 m (9·67 MC/S) signal. Adjust **C26** for maximum output, choosing the peak obtained with **C26** nearest its minimum position. Now adjust **C21** for maximum output.

SW1.—No alignment adjustments are possible on this band.