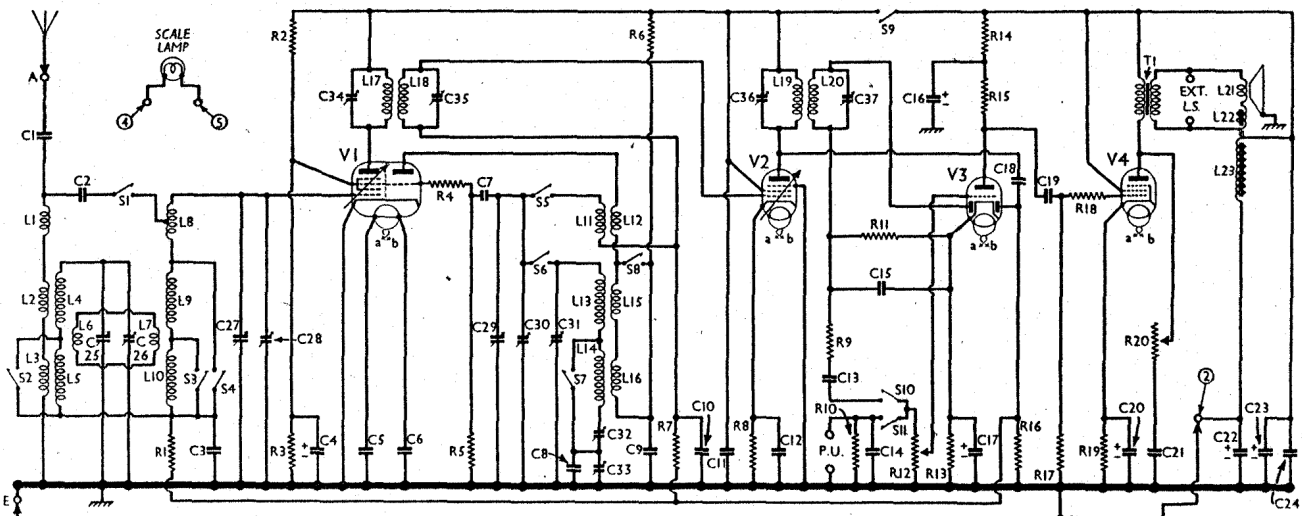
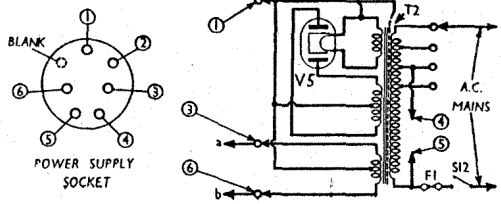


Circuit diagram of the Halcyon A581 3-band A.C. superhet.

HALCYON A581 & RGA 581



COMPONENTS AND VALUES

	CONDENSERS	Values (μF)
C1	Aerial series condenser	0·0005
C2	Aerial S.W. coupling	0·0005
C3	Band-pass bottom coupling; V1 hex. C.G. decoupling	0·25
C4*	V1 hexode S.G. decoupling	2·0
C5, C6	V1 heater R.F. by-passes	0·01, 0·01
C7	V1 osc. C.G. condenser	0·00005
C8	Osc. fixed M.W. tracker	0·0015
C9	V1 osc. anode decoupling	0·1
C10	V2 C.G. decoupling	0·1
C11	H.T. line S.W. R.F. by-pass	0·0001
C12	V2 cathode by-pass	0·1
C13	A.F. coupling to V3 triode	0·001
C14§	P.U. shunt	0·01
C15	I.F. filter	0·0001
C16*	V3 triode anode decoupling	2·0
C17*	V3 cathode by-pass	50·0
C18	V3 A.V.C. diode coupling	0·0001
C19	V3 to V4 A.F. coupling	0·01
C20*	V4 cathode by-pass	50·0
C21	Tone control condenser	0·05
C22*, C23*	H.T. smoothing	8·0, 8·0
C24	H.T. line R.F. by-pass	0·1
C25†	Band-pass primary tuning	0·0005
C26‡	Band-pass primary trimmer	0·000035
C27†	Band-pass secondary tuning	0·0005
C28‡	Band-pass secondary trimmer	0·000035
C29†	Osc. circuit tuning	0·0005
C30‡	Osc. circuit S.W. trimmer	0·000035
C31‡	Osc. circuit M.W. trimmer	0·000035
C32‡	Osc. circuit L.W. tracker	0·0009
C33‡	Osc. circuit M.W. tracker	0·0009
C34‡	1st I.F. trans. pri. tuning	—
C35‡	1st I.F. trans. sec. tuning	—
C36‡	2nd I.F. trans. pri. tuning	—
C37‡	2nd I.F. trans. sec. tuning	—

	RESISTANCES	Values (ohms)
R1	V1 hexode C.G. decoupling	1,000,000
R2, R3	V1 hexode S.G. potentiometer	19,000, 15,000
R4	V1 osc. C.G. stabiliser	50
R5	V1 osc. C.G. resistance	33,000
R6	V1 osc. anode decoupling	15,000
R7	V2 C.G. decoupling	1,000,000
R8	V2 fixed G.B. resistance	300
R9	I.F. stopper	250,000
R10*	P.U. shunt	10,000
R11	V3 signal diode load resistance	100,000
R12	Manual volume control	1,000,000
R13	V3 G.B. resistance	1,000
R14	V3 triode anode decoupling	10,000
R15	V3 triode anode load	33,000†
R16	V3 A.V.C. diode load	1,000,000
R17	V4 C.G. resistance	100,000
R18	V4 C.G. I.F. stopper	100,000
R19	V4 G.B. resistance	150
R20	Variable tone control	50,000

* Not in our chassis. † 10,000 Ω in our chassis

	OTHER COMPONENTS	Approx. Values (ohms)
L1	Aerial choke coil	5·2
L2	Aerial M.W. coupling coil	
L3	Aerial L.W. coupling coil	
L4, L5	Band-pass primary coils	3·4, 32·0
L6, L7	Band-pass coupling coils	Very low, Very low
L8	Aerial S.W. tuning coil	Very low
L9, L10	Band-pass secondary coils	2·6, 30·0
L11	Osc. S.W. tuning coil	Very low
L12	Osc. S.W. reaction coil	0·1
L13, L14	Osc. M.W. and L.W. tuning coils	2·25, 22·0
L15, L16	Osc. M.W. and L.W. reaction	3·0
L17, L18	1st I.F. trans. Pri. / Sec.	70·0, 70·0
L19, L20	2nd I.F. trans. Pri. / Sec.	70·0, 70·0
L21	Speaker speech coil	1·5
L22	Hum neutralising coil.	0·1
L23	Speaker field coil	1,600·0
T1	Speaker input trans. Pri. / Sec.	360·0, 0·5
T2	Mains trans. Pri. total / Heater sec. / Rect. heat. sec. / H.T. sec. total	45·0, 0·1, 0·25, 300·0
S1-S8	Waveband switches	—
S9-S11	Radio-gram change switches.	—
S12	Mains switch, ganged R12	—

VALVE ANALYSIS

Valve voltages and currents given in the table below are those measured in our receiver when it was operating on mains of 230 V, using the 240 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 1,200 V scale of an Avometer, chassis being negative.

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 TX4*	220	3·5	75	2·9
V2 VP4B	220	6·4	220	2·0
V3 DDT4	140	3·4	—	—
V4 APP4C	210	25·0	220	2·5
V5 APV4	290†	—	—	—

* Oscillator anode, 125 V, 7 mA.
† Each anode, A.C.

GENERAL NOTES

Switches.—**S1-S8** are the wavechange switches, ganged in a single unit beneath the chassis. The table below gives the switch positions for the three control settings, starting from fully anti-clockwise. O indicates open and **C** closed.

Switch	S.W.	M.W.	L.W.
S1	C	O	O
S2	C	C	O
S3	C	C	O
S4	C	O	O
S5	C	O	O
S6	O	C	C
S7	C	C	O
S8	C	O	O

radio, and **S11** on gram. Looking from the rear of the underside of the chassis, **S9** is on the right of the unit, and **S10, S11** on the left. The upper tag on the right is not used.

S12 is the Q.M.B. mains switch, ganged with the volume control **R12.**

Coils.—**L1-L7** and **L9, L10** are unscreened, on a common tubular former beneath the chassis. The various coils are indicated in our under-chassis view. **L8** and **L11, L12** are the S.W. coils on two separate tubular formers, also beneath the chassis. **L12** is the fine wire winding of the two. **L13-L16,** and the I.F. transformers **L17, L18** and **L19, L20** are in three screened units on the chassis deck, with their associated trimmers. The first of these units also contains **C8.**

Scale Lamp.—The scale is flood-lit from the rear by a high voltage lamp, with an M.E.S. base, which fits a holder on the chassis deck. In appearance the lamp resembles a "traction" type. Replacements may be obtained from Halcyon, quoting replacement No. 4908. The lamp is rated at 230 V, 10 W, and is connected permanently across the 220 V tapping on the primary of the mains transformer.

CIRCUIT ALIGNMENT

I.F. Stages.—Feed a 130·5 KC/S signal to **V1** control grid (top cap) and chassis, and adjust **C37, C36, C35** and **C34** in that order, for maximum output.

R.F. and Oscillator Stages.—Switch set to S.W., feed a 13 m. (23·07 MC/S) signal into **A** and **E** sockets, tune to 13 m. on scale, and adjust **C30** for maximum output. If there are two peaks, that with the least trimmer capacity is correct.

Switch set to M.W., tune to 250 m. on scale, feed in a 250 m. (1,200 KC/S) signal, and adjust **C31** for maximum output. If there are two peaks, that with the trimmer nearest its minimum position is correct. Now adjust **C28** and **C26** for maximum output. Feed in a 500 m. (600 KC/S) signal, tune it in, and adjust **C33** for maximum output, rocking the gang meanwhile for optimum results.

Switch set to L.W., feed in an 1,800 m. (166·7 KC/S) signal, tune to 1,800 m. on scale. Adjust **C32** for maximum output, rocking the gang meanwhile.