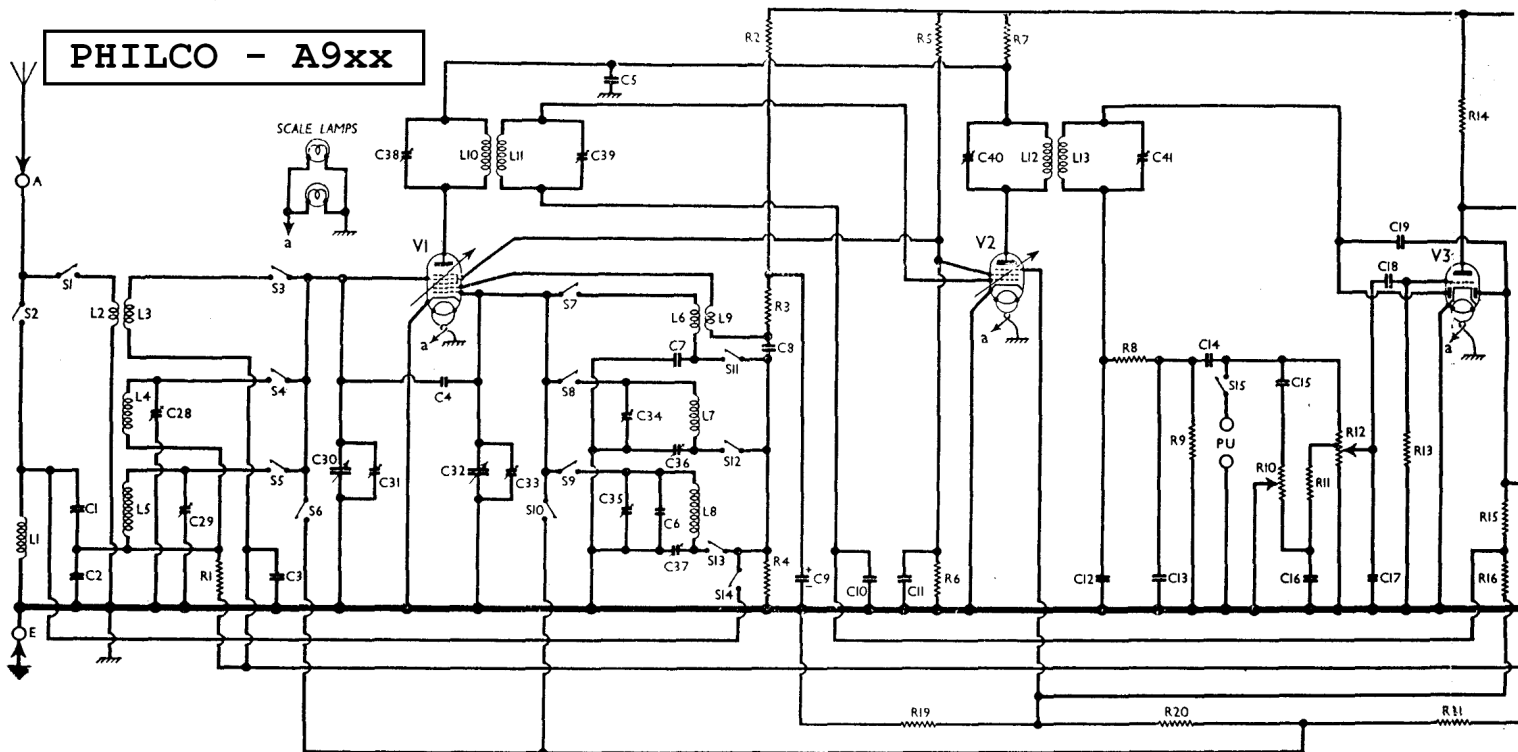


# PHILCO - A9xx



## CONDENSERS

Values  
( $\mu$ F)

C1	Aerial MW and LW coupling potential divider	0-01
C2	V1 pentode SW CG decoupling	0-0046
C3	Small coupling	Very low
C4	V1, V2 anodes decoupling	0-04
C5	Osc. circ. LW fixed trimmer	0-00004
C6	Osc. circuit SW tracker	0-004
C7	V1 osc. anode coupling	0-00025
C8	V1 osc. anode decoupling	8-0
C9	V2 CG decoupling	0-065
C10	V1, V2 SG's decoupling	0-09
C11	IF by-pass condensers	0-0001
C12	AF coupling to R12	0-01
C13	Part of variable tone control	0-004
C14	Part of tone compensator	0-01
C15	1F by-pass	0-00004
C16	R12 to V3 triode AF coupling	0-01
C17	Coupling to V3 AVC diode	0-00015
C18	IF by-pass	0-00015
C19	V3 triode to V4 AF coupling	0-065
C20	Fixed tone corrector	0-0065
C21	HT smoothing condensers	8-0
C22	Auto GB circuit by-pass	16-0
C23	Mains RF by-pass cond.	50-0
C24	clusers	0-015
C25	Aerial circuit MW trimmer	0-015
C26	Aerial circuit LW trimmer	—
C27	Aerial circuit SW trimmer	—
C28	Oscillator circuit tuning	—
C29	Osc. circuit SW trimmer	—
C30	Osc. circuit MW trimmer	—
C31	Osc. circuit LW trimmer	—
C32	Osc. circuit MW tracker	—
C33	Osc. circuit LW tracker	—
C34	1st IF trans. pri. tuning	—
C35	1st IF trans. sec. tuning	—
C36	2nd IF trans. pri. tuning	—
C37	2nd IF trans. sec. tuning	—

## OTHER COMPONENTS

Approx.  
Values  
(ohms)

L1	Aerial circuit choke	20-0
L2	Aerial SW coupling coil	0-2
L3	Aerial SW tuning coil	Very low
L4	Aerial MW tuning coil	3-0
L5	Aerial LW tuning coil	25-0
L6	Osc. circuit SW tuning coil	Very low
L7	Osc. circuit MW tuning coil	2-5
L8	Osc. circuit LW tuning coil	16-5
L9	Oscillator SW reaction coil	0-5
L10	1st IF trans. {Pri. ...	8-0
L11	Sec. ...	12-0
L12	2nd IF trans. {Pri. ...	12-0
L13	Sec. ...	8-0
L14	Speaker speech coil	2-0
L15	Hum neutralising coil	0-1
L16	Speaker field coil	1,500-0
T1	Speaker input {Pri. ...	500-0
	Sec. ...	0-2
T2	Mains {Heater sec. ...	30-0
	trans. {Rect. heat. sec. ...	0-1
	{HT sec., total...}	400-0
S1-S14	Waveband switches	—
S15	Gram pick-up switch	—
S16	Mains switch, ganged R10	—

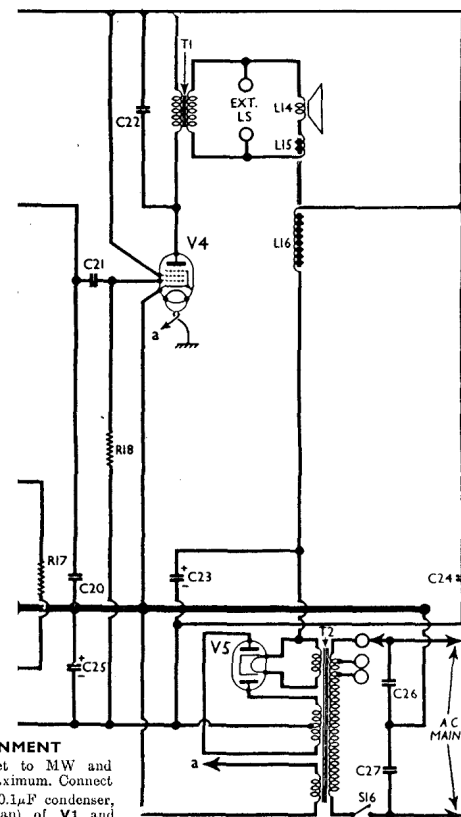
## VALVE ANALYSIS

Valve voltages and currents given in the table below are those measured in our receiver when it was operating on mains of 236V, using the 230-250V 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 400V scale of a model 7 Universal Avometer, chassis being negative.

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 6A7	248	2-1	73	2-7
V2 78	163	5-8	73	0-7
V3 75	248	3-0	—	—
V4 42	85	0-6	—	—
V5 80S	250	37-0	266	6-1
	340†	—	—	—

† Each anode, AC.



## CIRCUIT ALIGNMENT

**IF Stages.**—Switch set to MW and turn volume control to maximum. Connect signal generator, via a 0.1 $\mu$ F condenser, to control grid (top cap) of V1 and chassis. Feed in a 451 KC/S signal, and adjust C41, C40, C39 and C38 in turn for maximum output. Repeat these adjustments.

**RF and Oscillator Stages.**—To check pointer position, open the gang to its fullest extent, insert a 0.005m. feeler gauge under the heel of the moving vanes and close the gang on the gauge. In this position the pointer should cover the lower wavelength ends of the scales. Connect signal generator, via a suitable dummy aerial, to A and E sockets.

**SW.**—Switch set to SW, tune to 18 MC/S on scale, feed in an 18 MC/S (16.67 m) signal, and adjust C33 for maximum output. The correct peak is that involving the least trimmer capacity, and the trimmer may have to be fully open. Next adjust C31 for maximum output. Check that with the input of 18 MC/S, an image signal is obtained at about 17.1 MC/S on the scale. Repeat the C33 adjustment. Check the alignment with a 6 MC/S (50m) signal.

**MW.**—Switch set to MW, tune to 214m (dot on scale), feed in a 214m (1,400 KC/S) signal and adjust C34, then C28, for maximum output. Feed in a 500m (600 KC/S) signal, tune it in, and adjust C36 (the screw if a double unit is fitted) for maximum output, while rocking the gang for optimum results. Re-adjust C34 at 214m.

**LW.**—Switch set to LW, tune to 1,034.5m (dot on scale under "T" in "Tills"), feed in a 1,034.5m (290 KC/S) signal and adjust C35 for maximum output. Feed in a 1,304m (230 KC/S) signal, tune it in, and adjust C29 for maximum output. Feed in an 1,875m (160 KC/S) signal, tune it in, and adjust C37 (the nut if a double unit is fitted) for maximum output, while rocking the gang for optimum results. Re-adjust C35 at 1,034.5m.

\* Electrolytic. † Variable. ‡ Pre-set.  
§ See "Chassis Divergencies."

## RESISTANCES

Values  
(ohms)

R1	V1 pentode CG decoupling	51,000
R2	V1 oscillator anode HT feed	11,000
R3	resistances	6,500
R4	V1 osc. CG resistance	40,000
R5	V1, V2 SG's HT feed	32,000
R6	potential divider resistances	25,000
R7	V1, V2 anodes HT feed resistance	3,000
R8	1F stopper	51,000
R9	V3 signal diode load	330,000
R10	Variable tone control	500,000
R11	Part of tone compensator	40,000
R12	Manual volume control	2,000,000*
R13	V3 triode CG resistance	9,000,000
R14	V3 triode anode load	250,000
R15	V3 AVC diode load resistances	450,000
R16	AVC line decoupling	330,000
R17	AVC line decoupling	1,000,000
R18	V4 CG resistance	330,000
R19	V1, V2 fixed GB; V4 GB;	63
R20	and AVC delay resistances	35†
R21		200

\* Centre tapped

† Two 70  $\Omega$  resistances in parallel.