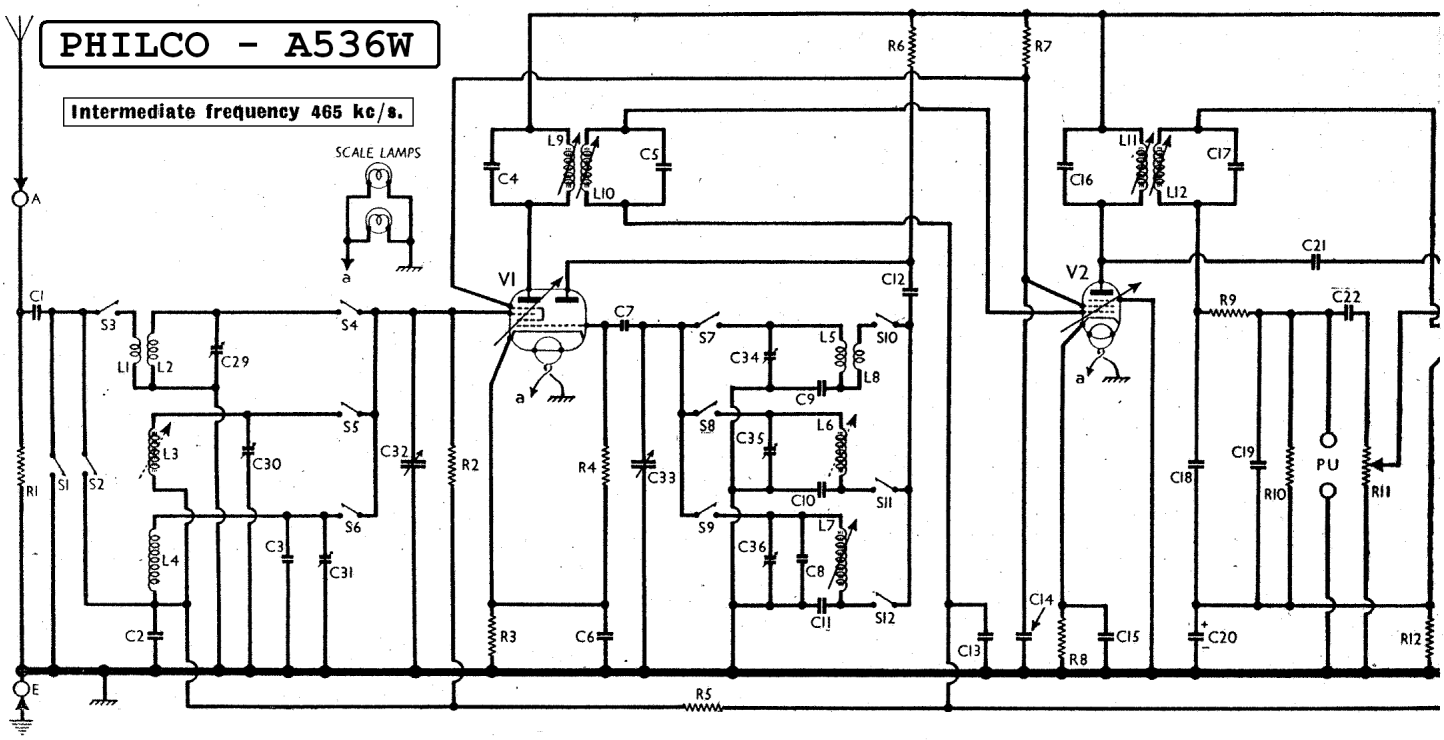
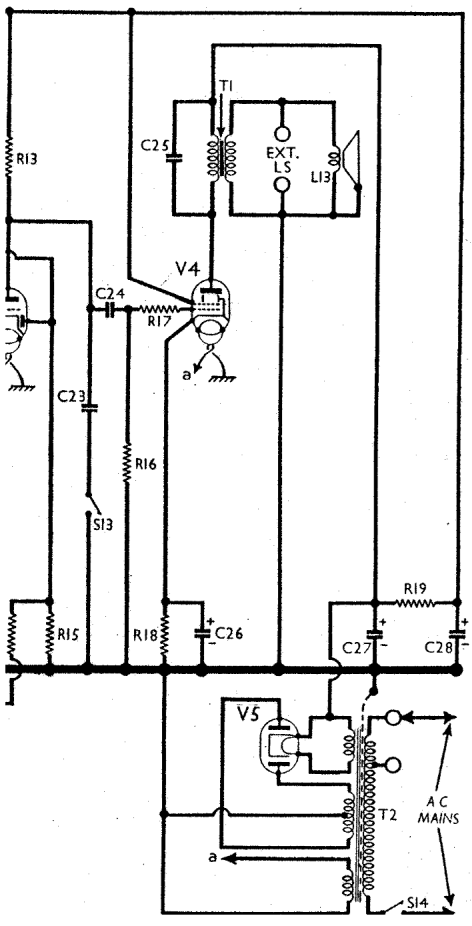
PHILCO - A536W

Intermediate frequency 465 kc/s.





RESISTORS		Values (ohms)
R1	Aerial circuit shunt ...	10,000
R2	V1 hex. C.G. resistor ...	1,000,000
R3	V1 fixed G.B. resistor ...	270
R4	V1 osc. C.G. resistor ...	47,000
R5	V1 hex. C.G. decoupling	33,000
R6	V1 osc. anode H.T. feed...	39,000
R7	V1, V2 S.G.'s H.T. feed ...	15,000
R8	V2 fixed G.B. resistor ...	270
R9	I.F. stopper	47,000
R10	V3 signal diode load ...	330,000
R11	Manual volume control ...	1,000,000
R12	V3 G.B.; A.V.C. delay ...	3,300
R13	V3 triode anode load ...	220,000
R14	A.V.C. line decoupling ...	1,000,000
R15	V3 A.V.C. diode load ...	1,000,000
R16	V4 C.G. resistor	470,000
R17	V4 grid stopper	4,700
R18	V4 G.B. resistor	390
R19	H.T. smoothing resistor...	4,300

CAPACITORS		Values (μF)
C1	Aerial M.W. and L.W. coupling capacitors ...	0.001
C2		0.0025
C3	Aerial L.W. fixed trimmer	0.00001
C4	1st I.F. transformer fixed tuning capacitors ...	0.0001
C5		0.0001
C6	V1 cathode by-pass ...	0.01
C7	V1 osc. C.G. capacitor ...	0.000075
C8	Osc. L.W. fixed trimmer	0.000068
C9	Osc. circ. S.W. tracker ...	0.004
C10	Osc. circ. M.W. tracker ...	0.000374
C11	Osc. circ. L.W. tracker ...	0.000145
C12	V1 osc. anode coupling ...	0.0003
C13	A.V.C. line decoupling ...	0.1
C14	V1, V2 S.G's decoupling	0.1
C15	V2 cathode by-pass ...	0.01
C16	2nd I.F. transformer fixed tuning capacitors ...	0.0001
C17		0.0001
C18	I.F. by-pass capacitors ...	0.0001
C19		0.0001
C20*	V3 cathode by-pass ...	50.0
C21	V3 A.V.C. diode coupling	0.0001
C22	A.F. coupling to V3 triode	0.01
C23	Tone control capacitor ...	0.005
C24	A.F. coupling to V4 C.G.	0.001
C25	Fixed tone corrector ...	0.01
C26*	V4 cathode by-pass ...	25.0
C27*	H.T. smoothing capacitors	32.0
C28*		32.0
C29‡	Aerial circ. S.W. trimmer	0.00003
C30‡	Aerial circ. M.W. trimmer	0.00003
C31‡	Aerial circ. L.W. trimmer	0.00003
C32†	Aerial circuit tuning ...	0.000458
C33†	Oscillator circuit tuning...	0.000461
C34‡	Osc. circ. S.W. trimmer ...	0.00003
C35‡	Osc. circ. M.W. trimmer...	0.00003
C36‡	Osc. circ. L.W. trimmer...	0.00003

* Electrolytic. † Variable. ‡ Pre-set.

OTHER COMPONENTS		Approx. Values (ohms.)
L1	Aerial S.W. coupling coil	0.2
L2	Aerial, S.W. tuning coil...	Very low
L3	Aerial M.W. tuning coil ...	6.5
L4	Aerial L.W. tuning coil ...	45.0
L5	Osc. S.W. tuning coil ...	Very low
L6	Osc. M.W. tuning coil ...	5.0
L7	Osc. L.W. tuning coil ...	11.5
L8	Osc. S.W. reaction coil ...	Very low
L9	1st I.F. trans. Pri. ...	7.0
L10	1st I.F. trans. Sec. ...	7.0
L11	2nd I.F. trans. Pri. ...	7.0
L12	2nd I.F. trans. Sec. ...	7.0
L13	Speaker speech coil ...	2.5
T1	Speaker input trans. Pri.	650.0
	Speaker input trans. Sec.	0.3
T2	Mains trans. Pri., total ...	32.0
	Mains trans. Heater sec. ...	0.1
	Mains trans. Rect. heat. sec.	0.1
	Mains trans. H.T. sec., total	350.0
S1–S12	Waveband switches ...	—
S13	Tone control switch ...	—
S14	Mains switch, ganged R11	—

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 6K8G	208	2.8	96	5.0
	Oscillator			
	82	3.1		
V2 6K7G	208	10.0	96	2.3
V3 6Q7G	64	0.45	—	—
V4 6V6G	300	28.0	208	1.5
V5 R52	276†	—	—	—

† Each anode, A.C.

Switch Diagram and Table

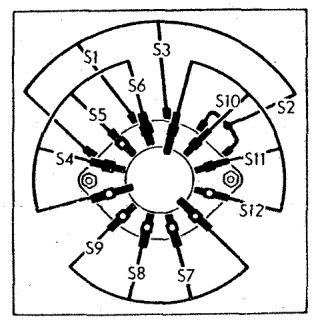


Diagram of the waveband switch unit **S1–S12**, drawn as seen when viewed from the rear of an inverted chassis. Below is the associated switch table.

Switch	L.W.	M.W.	S.W.	Gram.
S1	—	—	—	C
S2	C	C	—	—
S3	—	—	C	—
S4	—	—	C	—
S5	—	C	—	—
S6	C	—	—	—
S7	—	—	C	—
S8	—	C	—	—
S9	C	—	—	—
S10	—	—	C	—
S11	C	—	—	—
S12	C	—	—	—

DRIVE CORD REPLACEMENT

Sixty-four inches of a special Nylon twine, Finlayson "Python" No. 40, is required for the tuning drive system, which is completed in one single length.

Commence by turning the gang to minimum, place the chassis on the bench with the control spindles away from you, and check that the slot in the drive drum groove is then at 6 o'clock when viewed from the rear, as indicated in our sketch in cols. 2 and 3.

Tie one end of the cord securely to the spring, and hook the spring as shown in the sketch. Take the cord out through the groove slot, and one turn anti-clockwise round the drum; then round the right-hand pulley, round the left-hand pulley, over the *front* centre pulley, and down to the left of the control spindle.

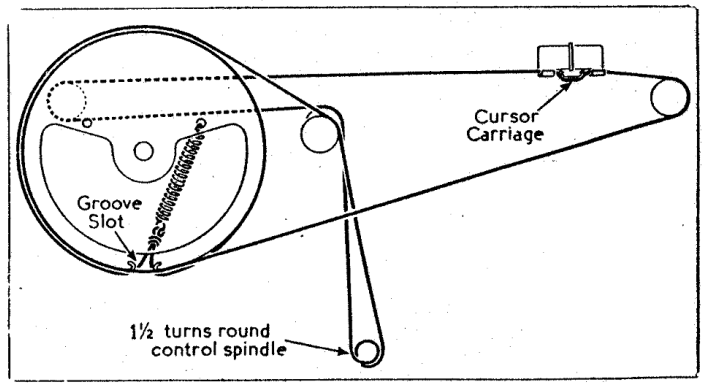
Take 1½ turns anti-clockwise round the control (still viewed from the rear), winding *forwards* as shown, then up to the top of the drive drum, missing the rear centre-pulley for the time being, and anti-clockwise round the drum, keeping it in *front* (that is the *further* side) of the turn already there, to the slot.

Holding the cord thus, turn the gang to maximum, then tie off the end of the cord securely to the spring, beside the other end of the cord, applying sufficient tension to the spring to extend it fairly well. Then strain the cord between the control spindle and the drum to draw it over the rear centre pulley, as shown in the sketch.

Finally, slip the cursor carriage on to the cord. With the gang at maximum, the cursor should be in line with the two setting arrows at top and bottom edges of the scale.

Chassis Divergencies.—Some chassis are fitted with a 0.005 μF capacitor for **C24,** but in others it may be 0.001 μF. A change to the smaller value should be made if microphony is troublesome on S.W. Also, until mains transformers with a screened primary were available, a capacitor of 0.01 μF was connected as an R.F. filter from one side of the mains to chassis.

In some early chassis, **C1** was 0.01 μF, and **R5** was 470,000 Ω; **C13** was 0.01 μF, and was returned to **V2** cathode instead of to chassis. The makers are modifying all such models that come into their service department, substituting the values quoted in our tables and returning **C13** to chassis as shown in our circuit diagram. Dealers are advised to do the same thing, particularly if modulation hum is apparent.



Sketch showing the cord driven tuning system. It is drawn as seen from the rear of the chassis when the gang is at minimum capacitance. The hollow side of the gang drum faces the front of the receiver.

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CIRCUIT ALIGNMENT

I.F. Stages.—Connect signal generator leads via a 0.1 μF capacitor to control grid (top cap) of **V1,** leaving existing connector in position. Switch set to M.W., *turn gang to minimum capacitance*, and volume control to maximum. Feed in a 465 kc/s (645.16m) signal, and adjust the cores of **L12, L11, L10** and **L9,** in that order, for maximum output. Repeat these adjustments.

R.F. and Oscillator Stages.—With the *gang at maximum capacitance*, the cursor should coincide with the arrow printed on the lower edge of the scale, near the right-hand corner. It may be adjusted in position if the drive drum fixing screws are slackened. Transfer signal generator leads to **A** and **E** sockets, via a 0.1 μF capacitor.

S.W.—Switch set to S.W., tune to 18 Mc/s on scale, feed in an 18 Mc/s (16.67 m) signal, and adjust **C34** for maximum output, using the peak involving the lesser trimmer capacitance; then tune to 17.07 Mc/s on scale and check that image appears. Return to 18 Mc/s on scale, and adjust **C29** for maximum output while rocking the gang.

M.W.—Switch set to M.W., tune to 214 m (spot on scale), feed in a 214 m (1,400 kc/s) signal and adjust **C35,** then **C30,** for maximum output.

The cores of **L3** and **L6** are pre-set in production to give a definite value of coil inductance, and they should only be adjusted if correct calibration cannot be obtained. The following procedure must then be adopted : Tune to 500 m on scale, feed in a 500 m (600 kc/s) signal, and adjust the cores of **L6** and **L3** for maximum output. Repeat the 214 m and 500 m adjustments until no improvement can be obtained.

L.W.—Switch set to L.W., tune to 1,875 m on scale, feed in a 1,875 m (160 kc/s) signal, and adjust the core of **L7** for maximum output. Tune to 1,034 m (spot on scale), feed in a 1,034 m (290 kc/s) signal, and adjust **C36,** then **C31,** for maximum output. Repeat the 1,875 m and 1,034 m adjustments until no improvement can be obtained.

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