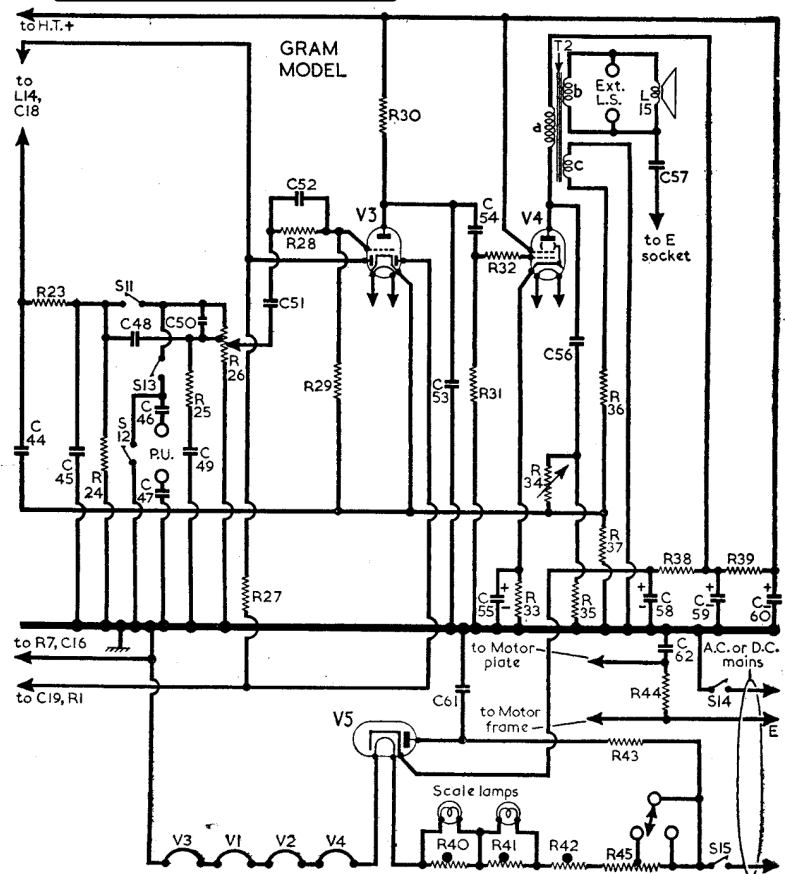


Table Model



Gram Model

Valve	Anode		Screen		Cath.
	V	mA	V	mA	
V1 14S7 ...	136 Oscillator 100	1.0 3.6	77	2.7	—
V2 7B7 ...	136	4.0	77	1.3	2.5
V3 7C6 ...	74	0.1	—	—	—
V4 35A5 ...	143	46.0	136	6.0	9.3
V5 35Z3 ...	205*	—	—	—	160.0†

*A.C. reading. †Cathode current 65mA.

Valve	Anode		Screen		Cath.
	V	mA	V	mA	
V1 14S7 ...	140 Oscillator 95	1.3 4.5	95	3.0	—
V2 7B7 ...	140	7.0	95	2.0	1.8
V3 7C6 ...	70	0.15	—	—	—
V4 35A5 ...	180	45	140	8.0	9.5
V5 35Z3 ...	227*	—	—	—	250.0†

*A.C. reading. †Cathode current 70mA.

Switches	I.W.	M.W.	S.W.	Gram
S1	○	—	—	○
S2	—	○	—	○
S3	—	—	○	—
S4	—	—	○	—
S5	—	○	—	—
S6	○	—	—	—
S7	—	○	—	—
S8	—	—	○	—
S9	○	—	—	—
S10	—	—	○	—
S11	○	—	—	—
S12	○	—	—	—
S13	—	—	—	○

PHILCO - A3646U

Switch Diagram and Table

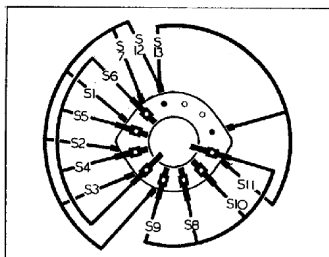


Diagram of the waveband switch unit, drawn as seen from the rear of an inverted chassis.

CAPACITORS		Values	Locations
C1	L.W. aerial shunt...	0-001μF	F3
C2	Aerial and earth isolators	0-002μF	F3
C3		0-01μF	G4
C4	L.W. aerial trim...	5pF	B1
C5	S.W. aerial trim...	15pF	F3
C6	V1 C.G. ...	100pF	F4
C7	R.F. by-pass ...	0-01μF	F4
C8	1st I.F. trans. tuning	75pF	A2
C9		75pF	A2
C10	V1 osc. C.G. ...	100pF	F3
C11	L.W. osc. trim...	12pF	G4
C12	M.W. osc. tracker...	450pF	G4
C13	Osc. anode couplers	220pF	F3
C14		3,900pF	G3
C15	Part R.F. filter ...	0-25μF	F3
C16	H.T. decoupling ...	0-05μF	F4

(Continued next column)

OTHER COMPONENTS		Approx. Values (ohms)	Locations
L1	Aerial coupling coils	2-5	F3
L2		30-0	B1
L3		—	F3
L4	Aerial tuning coils	2-0	B1
L5		35-0	B1
L6	Oscillator tuning coils	—	G3
L7		3-5	G3
L8	S.W. osc. reaction...	9-0	G3
L9		—	G3
L10	R.F. filter coil	—	F3
L11	1st I.F. trans.	7-5	A2
L12		7-5	A2
L13	2nd I.F. trans.	7-5	B2
L14		7-5	B2
L15	Speech coil	2-5	—
T1	O.P. trans. { a ... A3646U { b ... A3672U { c ...	190-0	D3
T2		300-0	—
T2		—	—
S1-S13	Waveband switches	—	G3
S14, S15	Mains sw., g'd R13	—	D3

Table Model

Valve	Anode		Screen		Cath.
	V	mA	V	mA	
V1 14S7 ...	136 Oscillator 100	1-0 3-6	77	2-7	—
V2 7B7 ...	136	4-0	77	1-3	2-5
V3 7C6 ...	74	0-1	—	—	—
V4 35A5 ...	143	46-0	136	6-0	9-3
V5 35Z3 ...	205*	—	—	—	160-0†

*A.C. reading. †Cathode current 65mA.

Gram Model

Valve	Anode		Screen		Cath.
	V	mA	V	mA	
V1 14S7 ...	140 Oscillator 95	1-3 4-5	95	3-0	—
V2 7B7 ...	140	7-0	95	2-0	1-8
V3 7C6 ...	70	0-15	—	—	—
V4 35A5 ...	180	45	140	8-0	9-5
V5 35Z3 ...	227*	—	—	—	250-0†

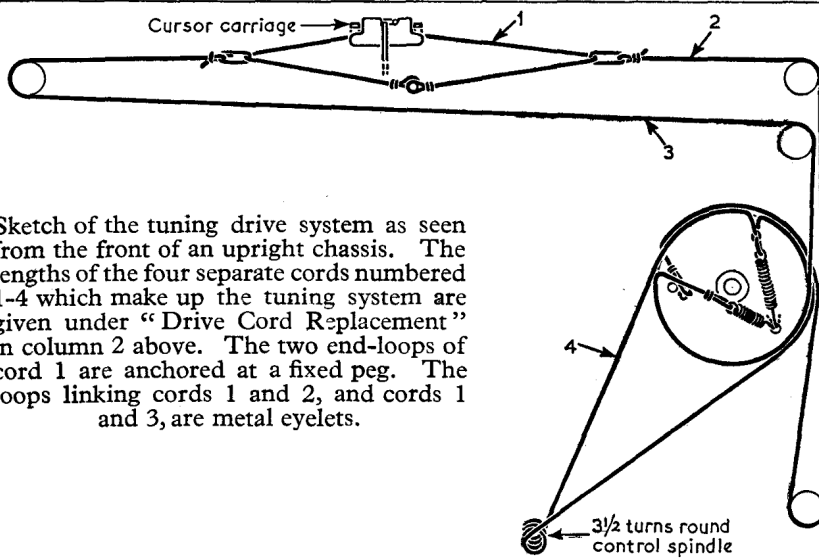
*A.C. reading. †Cathode current 70mA.

CAPACITORS (Continued)		Values	Locations
C17	2nd I.F. trans. ...	75pF	B2
C18	tuning	75pF	B2
C19	A.G.C. decoupling	0-01μF	F4
C20	I.F. by-passes	100pF	E4
C21		100pF	E4
C22	P.U. isolators	0-004μF	F4
C23		0-05μF	F4
C24	A.F. coupling	0-005μF	E4
C25	I.F. by-pass	220pF	E4
C26	A.F. coupling	0-005μF	E4
C27	Part tone control...	220pF	E3
C28*	V4 cath. by-pass ...	25μF	E4
C29	Ext. L.S. isolator ...	0-002μF	E4
C30	Tone corrector	0-02μF	D4
C31*	H.T. smoothing	40μF	B2
C32*		30μF	B2
C33*	Mains R.F. filter	20μF	B2
C34		0-05μF	D4
C35†	S.W. aerial trim...	—	A2
C36†	Aerial tuning	483pF	A2
C37†	Oscillator tuning	483pF	A1
C38†	S.W. osc. trim...	—	A1
C39†	M.W. osc. trim...	—	G3
C40†	L.W. osc. trim...	—	G4
C41†	M.W. osc. tracker...	—	G4
C42†	L.W. osc. tracker...	—	G4
C43	V1 S.G. decoup...	0-02μF	—
C44	I.F. by-passes	100pF	—
C45		100pF	—
C46	P.U. isolators	0-01μF	—
C47		0-05μF	—
C48	Tone correctors	100pF	—
C49		0-01μF	—
C50	A.F. coupling	56pF	—
C51		0-005μF	—
C52	Tone corrector	0-002μF	—
C53	I.F. by-pass	220pF	—
C54	A.F. coupling	0-01μF	—
C55*	Cath. by-pass	25μF	—
C56	Part tone control	0-015μF	—
C57	Ext. L.S. isolator	0-005μF	—
C58*	H.T. smoothing	40μF	—
C59*		30μF	—
C60*	Mains R.F. filter	20μF	—
C61		0-05μF	—
C62	Motor isolator	0-01μF	—

* Electrolytic. † Variable. ‡ Pre-set.

RESISTORS		Values	Locations
R1	V1 C.G. ...	1MΩ	F4
R2	V1 osc. C.G. ...	47kΩ	F3
R3	Osc. anode feed ...	10kΩ	F3
R4	Osc. stabilizer ...	68Ω	G3
R5	Anti-static leak ...	150kΩ	F4
R6	H.T. decoupling ...	15kΩ	F4
R7	V2 G.B. ...	470Ω	F4
R8	I.F. stopper ...	47kΩ	E4
R9	Volume control	500kΩ	E3
R10	A.G.C. decoupling	2-2MΩ	E4
R11	V3 C.G. ...	10MΩ	E4
R12	V3 anode load	470kΩ	E4
R13	Tone control	500kΩ	D3
R14	V4 C.G. stopper	47kΩ	E4
R15	V4 G.B. ...	180Ω	E4
R16	H.T. smoothing	150Ω	D4
R17		1kΩ	E3
R18	Thermistor CZ2 ...	—	D4
R19†	Ballast resistor	707Ω	C2
R20	Scale lamp shunts	50Ω	C2
R21		56Ω	E3
R22	V1 S.G. feed ...	15kΩ	—
R23	I.F. stopper	47kΩ	—
R24	Signal diode load	470kΩ	—
R25	Tone corrector	47kΩ	—
R26	Volume control	2-2MΩ	—
R27	A.G.C. decoupling	2-2MΩ	—
R28	Tone corrector	1MΩ	—
R29	V3 C.G. ...	10MΩ	—
R30	V3 anode load	470kΩ	—
R31	V4 C.G. ...	470kΩ	—
R32	V4 C.G. stopper	47kΩ	—
R33	V4 G.B. ...	180Ω	—
R34	Tone control	500kΩ	—
R35	Part tone control	4-7kΩ	—
R36	Neg. feed-back	390Ω	—
R37		47Ω	—
R38	H.T. smoothing	680Ω	—
R39		2-7kΩ	—
R40	Thermistors CZ3 ...	—	—
R41		—	—
R42	Thermistor CZ2 ...	—	—
R43	V5 surge limiter	100Ω	—
R44	Anti-static leak	2-2MΩ	—
R45†	Ballast resistor	767Ω	—

† Tapped at 325Ω + 150Ω + 232Ω from R18.
‡ Tapped at 600Ω + 167Ω from R42.



Sketch of the tuning drive system as seen from the front of an upright chassis. The lengths of the four separate cords numbered 1-4 which make up the tuning system are given under "Drive Cord Replacement" in column 2 above. The two end-loops of cord 1 are anchored at a fixed peg. The loops linking cords 1 and 2, and cords 1 and 3, are metal eyelets.

CIRCUIT ALIGNMENT

Remove chassis from cabinet and position it on the bench so that all the core and trimmer adjustments are accessible. It should be noted that while the chassis of the table model is isolated from the mains, this is not the case in the gram model, which should be connected to the mains so that its chassis is at earth potential.

I.F. Stages.—Switch receiver to M.W. and turn gang to minimum capacitance. Connect output of signal generator, via an 0.05μF capacitor in each lead, to control grid (pin 6) of V1 and chassis. Feed in a 470 kc/s (638.3m) signal and adjust the cores of L14 (location reference B2), L13 (E4), L12 (A2) and L11 (F4) for maximum output. Repeat these adjustments until no further improvement results.

R.F. and Oscillator Stages.—As the tuning scale remains in the cabinet when the chassis is withdrawn a substitute tuning scale must be used during the following alignment. A suitable substitute scale is printed in full size at the top of this page and may be clipped against the scale backing plate during alignment. When the chassis is finally replaced in its cabinet check that with the gang at

maximum capacitance the cursor coincides with the dots at the high wavelength ends of the tuning scales.

S.W.—Switch receiver to S.W. and transfer signal generator leads to A and E sockets, using a 400Ω series resistor in the "live" lead as dummy aerial. Tune receiver to 17 Mc/s, feed in a 17 Mc/s (17.65m) signal and adjust C38 (A1) and C35 (A2) for maximum output. Feed in a 12 Mc/s (25m) signal and check the calibration. Feed in a 6 Mc/s (50m) signal and check the calibration.

L.W.—Switch receiver to L.W. and replace 400Ω dummy aerial with a 200pF capacitor. Tune receiver to 857m, feed in an 857m (350 kc/s) signal and adjust C40 (G4) for maximum output while rocking the gang for optimum results. Tune receiver to 1,875m, feed in a 1,875m (160 kc/s) signal and adjust C42 (G4) for maximum output while rocking the gang for optimum results. Repeat these adjustments until no further improvement results. Feed in a 1,364m (220 kc/s) signal and check calibration.

M.W.—Switch receiver to M.W., tune to 200m, feed in a 200m (1,500 kc/s) signal and adjust C39 (G3) for maximum output while rocking gang for optimum

results. Tune receiver to 517.2m, feed in a 517.2m (580 kc/s) signal and adjust C41 (G4) for maximum output while rocking the gang for optimum results. Repeat these adjustments until no further improvement results. Feed in a 300m (1 Mc/s) signal and check calibration.