

Sketches showing the drive cord systems in the P45 and P46 (left) and the P45RG (right). They are drawn as seen when viewed from the rear with the gang at maximum capacitance. The P45RG drawing is reproduced from the makers' service manual.

Valve	Anode		Screen		Cath.
	V	mA	V	mA	
V1 ECH42	220	2.5	75	3.5	—
	Oscillator				
	150	6.0			
V2 EBF80	220	4.8	130	2.2	4.4
V3 EL41	205	29.0	220	5.0	6.3
V4 EZ40	510*	—	—	—	275.0†

* A.C. reading, anode to anode.
† Cathode current 53.0 mA.

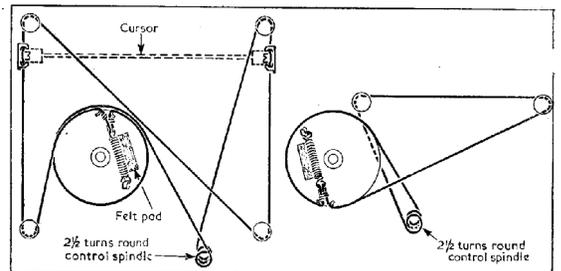
DRIVE CORD REPLACEMENT

About five feet of nylon braided glass yarn is required for a new drive cord in the table models, this length leaving an ample margin for tying off. The makers quote the exact length of the made-up cord as 50in between the centres of the end-loops.

The cord should be run as shown in the left-hand sketch, seen above in cols. 5 and 6, where the system is drawn as seen when viewed from the rear of the chassis when the gang is at

maximum capacitance. Both ends of the cord are looped on to the same end of the tension spring, and may be made up like that in advance and fitted as a complete loop if desired.

Four feet is sufficient for the cord in the P45RG, whose exact length the makers give as 42½in. The system as seen from the rear is shown in the right-hand sketch.



PYE - P45, P46

RESISTORS		Values	Locations
R1	Aerial shunt ...	22kΩ	G4
R2	V1 C.G. ...	1MΩ	F4
R3	V1 S.G. pot. ...	22kΩ	F4
R4	divider ...	33kΩ	F4
R5	V1 osc. C.G. ...	47kΩ	F3
R6	Osc. anode feed ...	10kΩ	F3
R7	V2 S.G. feed ...	33kΩ	F3
R8	A.G.C. pot. divider	2-2MΩ	E4
R9		2-2MΩ	F4
R10	A.G.C. diode load	1MΩ	E4
R11	V2 G.B. ...	680Ω	E4
R12	Signal diode load ...	470kΩ	F4
R13	Parts tone control	220kΩ	E4
R14		4-7kΩ	E3
R15	Volume control ...	1MΩ	E3
R16	V3 C.G. stopper ...	*2.2kΩ	E4
R17	V3 G.B. ...	180Ω	F4
R18	H.T. smoothing ...	†1kΩ	D4
R19	Parts P.U. tone correction	100kΩ	—
R20		1MΩ	—
R21	A.G.C. decoupling	470kΩ	—
R22	H.T. decoupling ...	10kΩ	—
R23	V2 S.G. load ...	22kΩ	—
R24	Part tone control	15kΩ	—

* Changed to 47kΩ on gram. model.
† Centie tapped.

CAPACITORS		Values	Locations
C1	Aerial coupling ...	470pF	G4
C2	L.W. aerial coup. ...	0-0024μF	G4
C3	Bandspread aerial coupling	100pF	G4
C4		5-6pF	G4
C5	Bandspread tuner	100pF	G4
C6	V1 C.G. ...	100pF	F4
C7	V1 S.G. decoup. ...	0-1μF	F4

(Continued next column)

CAPACITORS (continued)		Values	Locations
C8	1st I.F. trans. tun.	100pF	B1
C9		100pF	B1
C10	V1 osc. C.G. ...	100pF	F3
C11	Bandspread trimmer	180pF	F3
C12	M.W. osc. trim. ...	510pF	G3
C13	I.W. osc. trimmers	150pF	F3
C14		150pF	G4
C15	A.G.C. decoupling	0-02μF	E4
C16	Osc. anode coupling	100pF	G4
C17	Bandspread capacitors	270pF	G3
C18		150pF	G3
C19	V2 S.G. decoupling	0-1μF	F4
C20	A.G.C. coupling ...	10pF	E4
C21	2nd I.F. trans. tun.	100pF	B2
C22		100pF	B2
C23	V2 cath. by-pass ...	0-1μF	E4
C24	I.F. by-pass ...	470pF	E4
C25	Part tone control	0-005μF	D3
C26		0-002μF	E3
C27	15pF	E3	
C28	A.F. coupling	0-05μF	E4
C29		0-01μF	E4
C30	V3 cath. by-pass ...	0-01μF	D3
C31*	25μF	E4	
C32*	24μF	C2	
C33*	24μF	C2	
C34*	24μF	C2	
C35†	M.W. aerial trim. ...	50pF	G4
C36†	Aerial tuning ...	§28pF	A2
C37†	M.W. osc. trim. ...	50pF	G3
C38†	Oscillator tuning ...	§28pF	A1
C39	P.U. coupling ...	0-02μF	—
C40	P.U. tone corrector	0-002μF	—
C41*	V2 cath. by-pass ...	50μF	—
C42	V2 S.G. decoup. ...	0-002μF	—
C43	A.F. coupling	0-1μF	—
C44		0-01μF	—
C45*	H.T. decoupling ...	16μF	—
C46	Parts tone control	500pF	—
C47		0-02μF	—
C48	Tone corrector ...	0-002μF	—

* Electrolytic. † Variable. ‡ Pre-set.
§ "Swing" value, min. to max.

OTHER COMPONENTS		Approx. Values (ohms)	Locations
L1	M.W. aerial coup.	30-0	G4
L2	L.W. aerial tuning	50-0	G4
L3	M.W. aerial tuning	2-3	G4
L4	Band-spread aerial tuning coils	—	G4
L5		—	G4
L6	L.W. osc. tuning	—	F4
L7		3-5	G3
L8	M.W. osc. tuning ...	1-5	G3
L9	Band-spread osc. tuning coils	—	G4
L10		—	F4
L11	—	F3	
L12	1st I.F. trans.	Pri. 12-2	B1
L13		Sec. 12-2	B1
L14	2nd I.F. trans.	Pri. 12-2	B2
L15		Sec. 12-2	B2
L16	Speech coil	2-3	—
T1	O.P. trans.	a ... 500-0	C2
		b ... —	
		c ... —	
T2	Mains trans.	a ... 285.0	C2
		b ... 305.0	
		c, total 38.0	
S1-S36	Waveband switches	—	G4
S37-	—	—	—
S41	Tone/gram switches	—	D3
S42,	Mains sw, g'd tone sw.	—	D3
S43		—	
S44-		—	
S52	Tone/gram switches	—	—

CIRCUIT ALIGNMENT

I.F. Stages.—Remove chassis from cabinet and stand it on the bench so that adjustments above and below chassis are accessible. Connect signal generator output, via an 0.1 μF capacitor in the "live" lead, to control grid (pin 6) of V1 and chassis. Switch receiver to L.W. and tune to high wavelength end of band. Feed in a 470 kc/s

(638.3 m) signal and adjust the cores of L15 (location reference B2), L14 (F4), L13 (B1) and L12 (F3) for maximum output. Repeat these adjustments until no further improvement results.

R.F. and Oscillator Stages.—As the tuning scale remains fixed to the cabinet when the chassis is withdrawn, reference must be made, during the following alignment, to the substitute tuning scale printed on the left-hand side of the scale backing plate (viewed from front). Readings on this scale are taken against the lower horizontal edge of the cursor carriage. Check that with the gang at maximum capacitance the substitute scale reading is 100. Transfer signal generator leads, via a standard dummy aerial, to A and E sockets.

In the gram model, the substitute scale is calibrated 0-50, and when carrying out the following alignment the receiver must be tuned to the substitute scale reading, quoted in each case, after dividing it by two.

L.W.—Switch receiver to L.W., tune to 52 on substitute scale, feed in a 214 kc/s (1,400 m) signal and adjust the cores of L7 (G3) and L2 (G4) for maximum output. Repeat these adjustments.

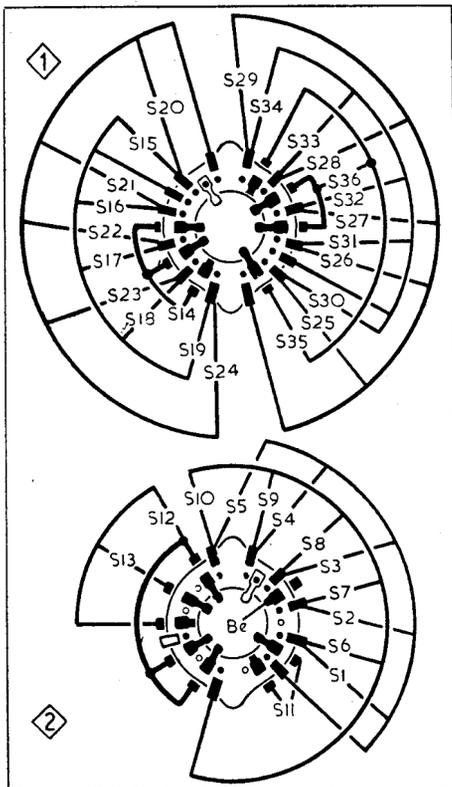
M.W.—Switch receiver to M.W., tune to 85 on scale, feed in a 600 kc/s (500 m) signal and adjust the cores of L8 (G3) and L3 (G4) for maximum output. Tune receiver to 15 on scale, feed in a 1,500 kc/s (200 m) signal and adjust C37 (G3) and C35 (G4) for maximum output. Repeat these adjustments until no further improvement results.

49 m band.—Switch receiver to 49 m, tune to 50 on scale, feed in a 6.1 Mc/s (49.18 m) signal and adjust the cores of L9 (G4) and L4 (G4) for maximum output.

31 m band.—Switch receiver to 31 m, tune to 50 on scale, feed in a 9.6 Mc/s (31.25 m) signal and adjust the cores of L10 (F4) and L5 (G4) for maximum output.

16 m band.—Switch receiver to 16 m, tune to 50 on scale, feed in a 17.8 Mc/s (16.85 m) signal and adjust the cores of L11 (F3) and L6 (F4) for maximum output.

Waveband Switch Diagrams and Table



Switch	L.W.	M.W.	49 m	31 m	16 m
S1	—	○	○	○	○
S2	○	—	○	○	○
S3	○	○	○	○	○
S4	○	○	○	○	○
S5	○	○	○	○	○
S6	○	○	—	—	—
S7	—	○	—	—	—
S8	—	—	○	—	—
S9	—	—	—	○	—
S10	—	—	—	—	○
S11	○	○	○	○	○
S12	○	○	○	○	○
S13	○	○	○	○	○
S14	○	○	○	○	○
S15	○	○	○	○	○
S16	—	○	—	—	—
S17	—	—	○	—	—
S18	—	—	—	○	—
S19	—	—	—	—	○
S20	—	○	○	○	○
S21	—	○	○	○	○
S22	○	○	○	○	○
S23	○	○	○	○	○
S24	○	○	○	○	○
S25	○	○	○	○	○
S26	○	○	○	○	○
S27	○	○	○	○	○
S28	○	○	○	○	○
S29	○	○	○	○	○
S30	○	○	○	○	○
S31	○	○	○	○	○
S32	—	○	—	—	—
S33	—	—	○	—	—
S34	—	—	—	○	—
S35	○	○	○	○	○
S36	—	—	○	○	○

Diagrams of the two waveband switch units as they appear in all three models when viewed from the rear of an inverted chassis. On the right is the associated switch table.