

Switch	S.W.	M.W.	L.W.	Gram.
S1	o	o	o	o
S2	o	o	o	o
S3	o	o	o	o
S4	o	o	o	o
S5	o	o	o	o
S6	o	o	o	o
S7	o	o	o	o
S8	o	o	o	o
S9	o	o	o	o
S10	o	o	o	o
S11	o	o	o	o
S12	o	o	o	o
S13	o	o	o	o
S14	o	o	o	o
S15	o	o	o	o
S16	o	o	o	o
S17	o	o	o	o
S18	o	o	o	o
S19	o	o	o	o
S20	o	o	o	o
S21	o	o	o	o
S22	o	o	o	o
S23	o	o	o	o
S24	o	o	o	o
S25	o	o	o	o
S26	o	o	o	o

Diagrams of the waveband switch units, drawn as seen from the rear of an inverted chassis. The associated switch table is seen on the right of the diagrams.

Valve	Anode		Screen		Cath. V
	V	mA	V	mA	
V1 TH41	155	1.8	155	5.0	2.2
V2 VP41	56	3.6	—	—	—
V3 HL41DD	260	6.5	260	1.7	3.0
V4 Pen 45	112	1.8	—	—	9.5
V5 UU6	246	37.0	222	6.8	7.5
	250†	—	—	—	275.0

Each anode, A.C.

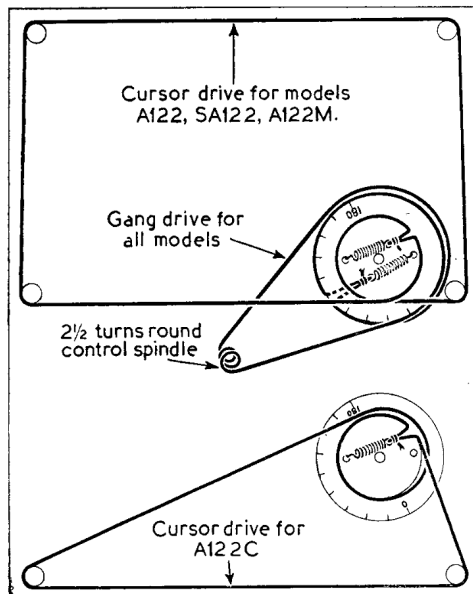
MURPHY
A122, SA122

CAPACITORS		Values	Locations
C1	I.F. rejector tune ...	470pF	A1
C2	L.W. aerial shunt	470pF	H4
C3	L.W. fixed trim...	27pF	H3
C4	V1 C.G. ...	500pF	A1
C5	V1 H.T. decoup ...	0.05μF	H4
C6	V1 cath. by-pass ...	0.05μF	H4
C7	1st I.F. trans. tuning	150pF	B2
C8	ing ...	150pF	B2
C9	V1 osc. C.G. ...	200pF	H4
C10	V1 A.G.C. decoup.	0.05μF	F4
C11	L.W. osc. tracker	180pF	J4
C12	M.W. osc. tracker...	620pF	J5
C13	L.W. fixed trim...	82pF	J4
C14	Osc. anode coupling	100pF	H4
C15	V2 cath. by-pass ...	0.05μF	H4
C16	2nd I.F. trans. tuning	150pF	B2
C17	ing ...	150pF	B2
C18	V2 A.G.C. decoup.	0.05μF	G4
C19	I.F. by-pass ...	200pF	G4
C20	V3 cath. by-pass...	0.25μF	E4
C21	A.F. coupling ...	0.02μF	G4
C22	A.G.C. coupling ...	50pF	G5
C23	P.U. coupling ...	0.05μF	J4
C24	A.F. coupling ...	0.02μF	F5
C25*	H.T. decoupling ...	8μF	C1
C26	Part tone control ...	0.1μF	F3
C27*	V4 cath. by-pass...	50μF	E5
C28	Negative feed-back	0.01μF	F4
C29*	H.T. smoothing	16μF	D1
C30*		16μF	C1
C31†	S.W. aerial trim. ...	35pF	H3
C32†	M.W. aerial trim. ...	35pF	H3
C33†	L.W. aerial trim. ...	35pF	H3
C34†	Aerial tuning ...	\$546pF	A1
C35†	S.W. osc. trimmer	35pF	H5
C36†	L.W. osc. trimmer	35pF	J5
C37†	M.W. osc. trimmer	35pF	J5
C38†	Osc. tuning ...	\$546pF	A1

* Electrolytic. † Variable. ‡ Pre-Set.
§ "Swing" value, minimum to maximum.

DRIVE CORD REPLACEMENT

The tuning drive in all the 122 series consists of two cord drives: the gang drive and the cursor drive. The gang drive is the same for all



Sketches showing the complete tuning drive system for the table models (above) and the cursor drive only for the console (below). They are both viewed from the front of the chassis with the gang at maximum.

RESISTORS		Values	Locations
R1	V1 C.G. ...	1MΩ	A1
R2	V1 G.B. ...	220Ω	H5
R3	V1 H.T. decoup. ...	15kΩ	G5
R4	V1 osc. C.G. ...	22kΩ	H5
R5	S.W. osc. stopper	100Ω	J4
R6	L.W. osc. shunt ...	39kΩ	J5
R7	V1 A.G.C. decoup.	2.2MΩ	G5
R8	V1 osc. H.T. feed	39kΩ	H5
R9	V2 G.B. ...	390Ω	G5
R10		220kΩ	G4
R11	Signal diode load ...	220kΩ	G4
R12	V2 A.G.C. decoup.	1MΩ	F4
R13	Volume control ...	1MΩ	F3
R14	V3 grid stopper ...	47kΩ	C2
R15	V3 G.B. and ...	390Ω	F5
R16	A.G.C. delay ...	1.2kΩ	G5
R17	V3 triode load ...	47kΩ	F4
R18		390kΩ	G4
R19	A.G.C. diode load	390kΩ	G4
R20	A.G.C. delay ...	47kΩ	E4
R21	V4 C.G. ...	470kΩ	F5
R22	V4 grid stopper ...	47kΩ	F5
R23	H.T. decoup. ...	2.2kΩ	F4
R24	V4 G.B. ...	180Ω	F5
R25	Tone control ...	20kΩ	E3
R26		270kΩ	F4
R27	Negative feed-back	47kΩ	F4

OTHER COMPONENTS		Approx. values (ohms)	Locations
L1	I.F. rejector	3.0	A1
L2		Very low	B1
L3	Aerial coup- ling coils { S.W. M.W. L.W. }	1.0 24.0	B1
L4			B1
L5	Aerial tuning { S.W. M.W. L.W. }	Very low 3.5 24.0	B1
L6			B1
L7			B1
L8	Reaction coils { M.W. L.W. }	0.6 Very low	J5
L9			J5
L10	Osc. tuning coils { L.W. M.W. S.W. }	5.0 1.7 Very low	J5
L11			J5
L12			J5
L13	1st I.F. { Pri. Sec. }	6.0 6.0	B2
L14	trans. { Pri. Sec. }	6.0 6.0	B2
L15	2nd I.F. { Pri. Sec. }	6.0 6.0	B2
L16	trans. { Pri. Sec. }	6.0 6.0	B2
L17	Speech coil	2-1	—
L18	Smoothing choke	270-0	G3
T1	Output { Pri. Sec. }	320-0 Very low	B1
T2	trans. { Total primary Total H.T. sec. }	36.0 310-0	D1
S1-	6-3 V heater	Very low	D1
S25	Rect. heater	Very low	D1
S1-	Waveband and	—	J3
S25	P.U. switches	—	J3
S26	Mains sw. g'd R25	—	E3

types, but in the console the cursor drive is different from the table models.

In the A122, SA122 and A122C, the cord used originally was type 5, spec. 935, but it was changed later for a thinner cord (type 3, spec. 936) which involved a change of tuning scale grading. The former cord is used if the scale panel is type 48539/1 (see under "Circuit Alignment"), and the latter (finer cord) for scale panel type 48559/2. Calibration errors will occur if the wrong type of cord is used.

In the A122M, the finer cord only is used, and it is described as woven and waxed Italian hemp. The course taken by each cord is shown clearly in the sketches in col. 4, where in each case the drive is drawn as seen from the front of the chassis standing on its base, with the gang at maximum capacitance.

The length of cord required for the main drive is 3ft 6in in all models; 5ft is required for the cursor drive in the table models, and 4ft in the console. Where both cords are to be fitted, the gang drive should be fitted first, but where the gang drive only is to be fitted, the cursor drive should be slipped off its anchorage and the slack cord dropped temporarily off its pulleys. Calibration should be adjusted as explained under "Circuit Alignment."

CIRCUIT ALIGNMENT

I.F. Stages.—Remove chassis from cabinet, switch set to M.W., turn the volume and tone controls fully clockwise and the gang to maximum capacitance. Connect signal generator, via a 0.1μF capacitor in the "live" lead, to control grid (top cap) of V1 and chassis, feed in a 465 kc/s (645.16 m) signal and adjust L16, L15, L14 and L13, strictly in that order, for maximum output, using a non-metallic trimming tool. Do not readjust a core after it has been set.

R.F. and Oscillator Stages.—As the tuning scale is fixed to the cabinet and alignment is carried out with the chassis on the bench, adjustments are made with reference to the

scale printed on the front of the tuning drive drum. This scale is divided into 180 degrees, and readings are taken against the "V" slot in the bracket fixed to the front member of the chassis. With the gang at maximum capacitance, the scale should read zero, and if necessary the bracket can be adjusted upon slackening its fixing screw.

In models A122, SA122 and A122C either one of two types of tuning scale may be found (No. 48559/2 or No. 48539/1) and in model A122M a third type (No. 52109) is used. Each of these scales has a separate set of calibration references for the drive drum scale, and in the alignment table these references are given under "Drive Drum Setting." Before commencing alignment on models A122, SA122 and A122C it is necessary to know the type of tuning scale fitted, and this may be checked by removing the scale assembly, when the type number will be visible at the bottom centre edge of the scale panel.

Transfer "live" signal generator lead to aerial socket, using a 400Ω resistor on S.W. or a 200pF capacitor on M.W. and L.W. as a dummy aerial. Adjust R.F. and oscillator stages as shown in the alignment table for maximum output, switching to the appropriate waveband. Use an output meter connected to the external speaker sockets, and do not permit the output to exceed 0.5 W (about 1.0 V).

To overcome the effect of oscillator pulling on S.W., use the tuning control to hold the signal while adjusting the aerial circuit. On all bands the local oscillator frequency is higher than the signal frequency, so that if two peaks are found for G35, use that involving the smaller capacitance.

I.F. Rejector.—This is accurately adjusted at the factory and should not need readjustment. The core is held in position by waxed thread packing, but it can be moved if necessary by easing forward or backwards with a suitably shaped non-metallic tool. It should be adjusted at 465 kc/s for minimum output.

Circuit Alignment Table

Sig. Gen. Frequency	Drive Drum Setting			Switch Set to	Adjustments	Locations
	48559/2	48539/1	52109			
300 kc/s (1.000m)	105	160	167	L.W.	C36 C33	J5 H3
158 kc/s (1.898m)	31	31	31	L.W.	L10	A2
1.363 kc/s (220m)	157.5	154	156.5	M.W.	C37 C32	J5 H3
15.23 Mc/s (19.7m)	156.5	153	155.5	S.W.	C35 C31	J5 H3
7.24 Mc/s (41.4m)	55	52.5	52.5	S.W.	"Bottom" turns L5, L12	B1 J5

MURPHY
A122, SA122