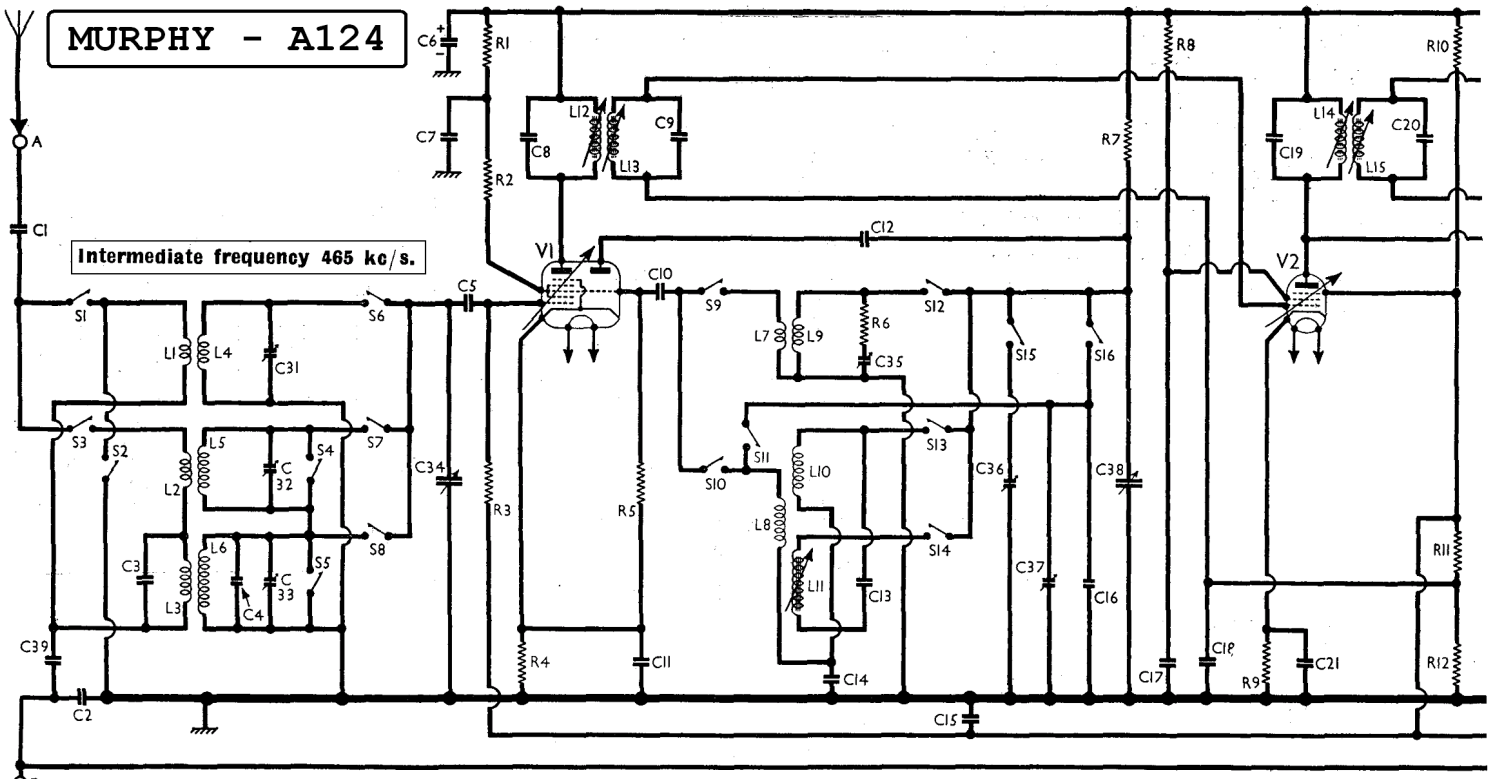
MURPHY - A124



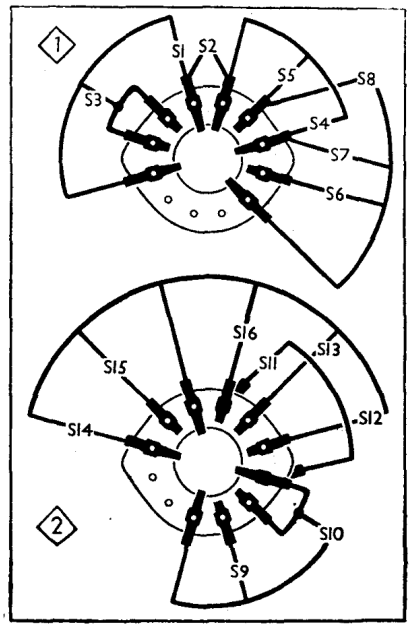
RESISTORS		Values (ohms)	Locations
R1	V1 S.G. decoup.	15,000	G3
R2	V1 S.G. stopper ...	25	G3
R3	V1 Heptode C.G....	1,000,000	G3
R4	V1 fixed G.B. ...	560	G4
R5	V1 osc. C.G. ...	22,000	G3
R6	S.W. osc. damping	56	H4
R7	Osc. anode load ...	33,000	G4
R8	V2 S.G. H.T. feed	47,000	G4
R9	V2 fixed G.B. ...	470	G4
R10	H.T. potential divider resistors	4,700,000	G4
R11		680,000	G4
R12		1,200,000	G4
R13	I.F. stopper ...	47,000	F4
R14	Signal diode load...	470,000	F4
R15	Volume control ...	1,000,000	E3
R16	I.F. stopper ...	47,000	C1
R17	H.T. decoupling	2,200	G3
R18	Tone control resistors	3,900	D3
R19		22,000	D3
R20	V3 G.B. ...	180	F4
R21	A.G.C. diode load	680,000	G4
R22	H.T. smoothing resistors	2,200	G4
R23		470	G4
R24	V4 surge limiter	47	E4

CAPACITORS		Values (μF)	Locations
C1	Aerial series ...	·0005	A1
C2	Isolating capacitor	0·01	J4
C3	L.W. aerial shunt	0·00047	H4
C4	L.W. fixed trimmer	0·000027	J3
C5	V1 heptode C.G. ...	0·0005	H3
C6*	V1, V2 H.T. smooth	16·0	J4
C7	V1 S.G. decoup.	0·05	G3
C8	1st I.F. transformer tuning	0·0001	B2
C9		0·0001	B2
C10	V1 osc. C.G. ...	0·0001	H3
C11	V1 cath. by-pass	0·05	G3
C12	V1 osc. anode coup.	0·0001	H3
C13	L.W. tracker ...	0·00018	H4
C14	M.W. tracker ...	0·00062	G4
C15	A.G.C. decoupling	0·05	F5
C16	L.W. osc. fixed trim.	0·000085	G4
C17	V2 S.G. decoup.	0·05	G5
C18	V2 C.G. decoup. ...	0·05	G5
C19	2nd I.F. transformer tuning	0·0001	B2
C20		0·0001	B2
C21	V2 cath. by-pass	0·05	G5
C22	I.F. by-pass	0·0001	F4
C23*	V3 cth. by-pass ...	50·0	E4
C24	A.G.C. coupling ...	0·000033	G4
C25	A.F. coupling ...	0·002	F4
C26	I.F. by-pass ...	0·0001	F4
C27	Tone control ...	0·05	E3
C28	V4 R.F. by-pass ...	0·05	D4
C29*	H.T. smoothing ...	16·0	C2
C30*		32·0	J4
C31‡	Aerial S.W. trim	0·000035	H3
C32‡	Aerial M.W. trim	0·000035	J3
C33‡	Aerial L.W. trim	0·000035	J3
C34†	Aerial tuning ...	0·000546	A1
C35‡	Osc. S.W. trim ...	0·000035	H4
C36‡	Osc. M.W. trim ...	0·000035	H4
C37‡	Osc. L.W. trim ...	0·000035	H4
C38†	Oscillator tuning	0·000546	A2
C39	Earth isolator ...	0·01	A2

* Electrolytic. † Variable. ‡ Pre-set.

OTHER COMPONENTS		Approx. Values (ohms)	Locations
L1	Aerial coupling coils	very low	A1
L2		1·0	
L3		21·0	
L4	Aerial tuning coils	very low	A1
L5		4·0	
L6		22·0	
L7	Oscillator coupling coils	very low	H4
L8		0·5	
L9	Oscillator tuning coils	0·5	H4
L10		3·0	
L11		6·0	
L12	1st I.F. trans. Pri.	7·5	B2
L13	1st I.F. trans. Sec.	7·5	B2
L14	2nd I.F. trans. Pri.	7·5	B2
L15	2nd I.F. trans. Sec.	7·5	B2
L16	Mains R.F. filter chokes ...	8·5	E4
L17		8·5	E4
L18	Speech coil ...	3·0	—
T1	Output trans. Pri.	320·0	F3
	Output trans. Sec.	0·3	
T2	Mains auto-trans. 6–7	9·0	C1
	Mains auto-trans. 7–8	20·0	
	Mains auto-trans. 8–9	80·0	
	Mains auto-trans. 9–10	64·0	
	Mains auto-trans. 10–11	0·5	
	Mains auto-trans. total	173·5	
S1-S16	W/band switches...	—	H3
S17, S19	Tone control switches ...	—	D3
S20	Mains switch, g'd R15	—	E3

Switch	S.W.	M.W.	L.W.
S1	C	—	—
S2	—	C	C
S3	—	C	C
S4	C	—	—
S5	—	C	—
S6	—	C	C
S7	—	—	C
S8	C	—	C
S9	—	C	C
S10	C	—	—
S11	—	—	—
S12	—	—	—
S13	—	C	C
S14	—	—	C
S15	—	—	C
S16	—	—	C



Diagrams of the waveband switch units, drawn as seen from the rear of an inverted chassis. **Sz** is omitted in

Valves	Anode		Screen		Cath.
	V	m/A	V	m/A	V
V1 10C1	180	2·2	94	5.5	5·8†
	Oscillator				
	64	3·4			
V2 10F9	180	6·4	75	2·1	3·5†
V3 PEN45DD	220	26·0	180	4·7	5·9†
V4 U404	243§	—	—	—	248·0

§ A.C. † 10v. range

CIRCUIT ALIGNMENT

The makers state that the receiver may be aligned while still on its baffle, a cranked screwdriver being used to adjust **C31, C32** and **C33.** We found that where a major adjustment is required, it is simpler to remove the baffle, so that free access is obtained to these trimmers.

A non-metallic screwdriver should be used for the I.F. core adjustments so that the adjustment is not upset by the removal of the screwdriver, and also to avoid damaging the trimmer cores.

I.F. Stages.—Connect signal generator, via a 0.1 μF capacitor in the "live" lead, to control grid (pin 6) of **V2** and the **E** socket. Switch set to M.W., turn the volume control and gang to maximum and fully unscrew **L14** and **L15** cores (location F4, B2). Feed in a 465 kc/s (645.16 m) signal, and adjust the cores of **L14** and **L15** for maximum output.

Transfer "live" signal generator lead to M.W. trimmer tag **C32** (J3), fully unscrew the cores of **L12** and **L13** (G4, B2), feed in a 465 kc/s signal, and adjust the cores of **L12** and **L13,** in that order, for maximum output.

R.F. and Oscillator Stages.—With the gang at maximum capacitance and the baffle mounted, the cursor should coincide with the 52 m mark on the scale. It may be adjusted by sliding it along the drive cord.

If the baffle has been removed, an alignment scale printed on the gang drum may be used for calibration. With the gang at maximum, zero reading on this scale should be opposite the pointer associated with it. It may be adjusted if the two fixing screws are slackened. In the following instructions readings are given for the tuning scale and for the alignment scale. Connect the signal generator leads to **A** and **E** sockets via a suitable dummy aerial.

L.W.—Switch set to L.W., and unscrew **C33** (J3) and **C37** (H4). Tune to 1,000 m on scale (168.5 deg on alignment scale), feed in a 1,000 m (300 kc/s) signal, and adjust **C37** and **C33** for maximum output. Tune to 1,900 m on scale (34 deg), feed in a 1,900 m (158 kc/s) signal, and adjust **L11** (A1) for maximum output. Repeat these operations until no improvement results.

M.W.—Switch set to M.W. and unscrew **C32** (J3) and **C36** (H4), tune to 220 m on scale (158 deg), feed in a 220 m (1,363 kc/s) signal, and adjust **C36** and **C32** for maximum output. Tune to about 300 m on scale (between 111.75 and 119.5 deg on drum) and check calibration against a 300 m (1,000 kc/s) signal. Tune to 500 m on scale (29.5 deg) and likewise check calibration against a 500 m (600 kc/s) signal.

S.W.—Switch set to S.W., and unscrew **C31** (H3) and **C35** (H4). Tune to 20 m on scale (156.5 deg), feed in a 20 m (15 Mc/s) signal and adjust **C35** and **C31** for maximum output, choosing the peak on **C35** involving the lesser capacitance. Tune to about 31.25 m on scale (94.5-97.5 deg), and check calibration against a 31.25 m (9.6 Mc/s) signal. Tune to 41.4 m on scale (50 deg) and check calibration against a 41.4 m (7.25 Mc/s) signal. In cases of large error, the turns of **L4** or **L9** may be adjusted.

Aerial Filter.—When fitted, connect a voltmeter between cathode of **V2** and chassis, switch to the 10 V range, tune the receiver to the interfering station and adjust the filter core for maximum reading on the meter.

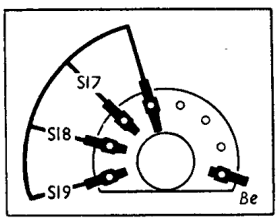


Diagram of the tone control switch unit, as seen from the rear of an inverted chassis.

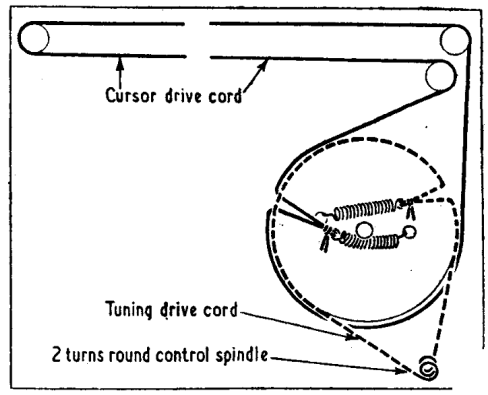
DRIVE CORD REPLACEMENT

There are two drive cords in this receiver: the tuning drive, and the cursor drive. It is advisable to fit the cursor drive cord before the tuning drive cord. About six feet of cord is required altogether for both cords, and suitable material (spec. No. 936) can be obtained from the Service Department, Murphy Radio, Ltd., Welwyn Garden City, Herts. Before fitting, it should be stretched by suspending a weight of 3 or 4 lb for an hour or so.

The two cords are seen in the sketch below, where the system is drawn as seen from the front with the gang at maximum. The tuning drive cord is drawn in broken line to distinguish it from the other.

Cursor Drive.—Take about four feet of cord and make up a loop which when stretched between two pins stuck in the bench measures 22$\frac{5}{8}$in. The spring should be tied in the knot, and the cord is then threaded through the appropriate holes in the side of the drum, leaving the spring inside. Then run the cord as shown in our sketch, but the spring should not be hooked up until the tuning drive cord is fitted.

Tuning Drive.—Take about two feet of cord and make up a loop which, when stretched between two pins stuck in the bench measures 9in., the spring being tied in the knot. Thread the loop through the appropriate holes in the drum, leaving the spring inside the drum. Remove the circlip from the end of the tuning control spindle and withdraw the spindle. Make 2$\frac{1}{2}$ turns round a rod or finger as we show round the spindle, and put the control spindle back, passing it through the turns. Finally, run the cord round the drum as shown, and hook up both tension springs.



Sketch of the tuning and cursor drive cord systems, as seen from the front when the gang is at maximum.

Chassis Divergencies.—**C39** will not be found on late models. It was necessitated by the presence of **S2,** which occurs only "incidentally" in the M.W. and L.W. positions and would short-circuit **C2** if **C39** were not fitted. The switch design has been altered, however, to eliminate **S2,** so **C39** is eliminated also.