



Switch Diagram and Table

CAPACITORS		Values (μF)	Location
C1	I.F. filter tuning ...	0.0001	J8
C2	V1 hex. C.G. ...	0.0001	A2
C3	V1 S.G. decoup. ...	0.05	H6
C4	1st I.F. transformer {	0.0001	A4
C5		0.0001	A4
C6	V1 osc. C.G. ...	0.0001	J6
C7	S.W. tracker ...	0.005	J7
C8	M.W. tracker ...	0.00055	J7
C9	L.W. tracker ...	0.0001	J7
C10	L.W. trimmer ...	0.00005	H7
C11	Osc. anode coup. ...	0.0001	16
C12	A.V.C. decoupling ...	0.05	18
C13	V2 S.G. decoup. ...	0.05	18
C14	2nd I.F. trans. {	0.0001	B4
C15		0.0001	B4
C16	I.F. by-passes {	0.0001	H8
C17		0.0001	H8
C18	A.V.C. coupling ...	0.00005	18
C19	A.F. coupling ...	0.01	H5
C20	T.I. C.G. decoup. ...	0.05	18
C21	V3 H.T. decoup. ...	0.1	G6
C22	I.F. by-pass ...	0.0002	H8
C23	A.F. coupling ...	0.01	G8
C24	G.B. decoupling ...	0.5	E8
C25	Tone control ...	0.1	F7
C26*	H.T. smoothing capacitors {	8.0	D1
C27*		16.0	D1
C28*	Aerial S.W. trim. ...	4.0	F6
C29†		0.00006	H5
C30†	Aerial M.W. trim. ...	0.00006	15
C31†	Aerial L.W. trim. ...	0.00006	15
C32†	Aerial tuning ...	0.0005	A2
C33†	Osc. M.W. track. ...	0.00006	J7
C34†	Osc. L.W. track. ...	0.00012	H7
C35†	Osc. S.W. trim. ...	0.00006	J7
C36†	Osc. M.W. trim. ...	0.00006	17
C37†	Osc. L.W. trim. ...	0.00006	17
C38†	Oscillator tuning ...	0.0005	A2

\* Electrolytic. † Variable. ‡ Pre-set.

## VALVE ANALYSIS

Valve	Anode Voltage (V)	Anode Current (mA)	Screen Voltage (V)	Screen Current (mA)
V1 X61M	207	1.9	80	2.6
V2 KTW61	104	4.0	60	1.6
V3 DH63	55	0.65	—	—
V4 KT61	246	30.0	207	5.0
V5 U50	252†	—	—	—
T1 Y63	18	0.31	—	—
	207	0.4	—	—

† Each anode, A.C.

**Chassis Divergencies.**—Our circuit shows the arrangement found in our sample chassis, but in some cases V2 anode may be fed from the main H.T. positive line, instead of the higher-voltage point at the junction of L19 and R26.

RESISTORS		Values (ohms)	Location
R1	V1 hex. C.G. ...	220,000	B2
R2	V1 S.G. H.T. ...	12,000	H6
R3	potential divider {	10,000	H6
R4		100	16
R5	Osc. stabilizer ...	68,000	16
R6	V1 osc. C.G. ...	22,000	16
R7	Osc. H.T. feed ...	68,000	18
R8	V2 S.G. H.T. {	150,000	H8
R9		2,000,000	H8
R10	I.F. stopper ...	68,000	H8
R11	A.V.C. decoupling ...	470,000	18
R12	Volume control ...	500,000	G5
R13	V3 C.G. resistor ...	4,700,000	H6
R14	Feed-back {	220	G8
R15		2,200	G8
R16	V3 H.T. decoup. ...	150,000	G7
R17	V3 triode load ...	150,000	G8
R18	A.V.C. diode load ...	1,500,000	18
R19	T.I. triode load ...	680,000	D3
R20	V4 C.G. resistor ...	340,000	F8
R21	V4 grid stopper ...	47,000	F8
R22	V4 G.B. resistor ...	100	F8
R23	G.B. decoupling ...	220,000	E8
R24	V1, V2 G.B., A.V.C. delay ...	33	E8
R25	Tone control ...	50,000	F5
R26	H.T. smoothing ...	1,500	G7

## OTHER COMPONENTS

		Approx. Values (ohms)	Location
L1	I.F. Filter Coil ...	13.0	J8
L2	Aerial coupling coils ...	0.3	B1
L3		26.0	B1
L4	Aerial tuning coils ...	50.0	A1
L5		Very low	B1
L6	Oscillator reaction coils ...	9.0	B1
L7		40.0	A1
L8	Oscillator tuning coils ...	21.0	J7
L9		5.0	J6
L10	Oscillator tuning coils ...	7.2	J7
L11		Very low	J7
L12	1st I.F. trans. {	15.0	17
L13		13.5	A4
L14	2nd I.F. trans. {	13.5	A4
L15		13.5	B4
L16	Speech coil ...	13.5	B4
L17		1.4	—
L18	H.T. choke ...	52.0	C2
L19		75.0	E6
T1	Output trans. {	0.1	E6
		40.0	D2
T2	Mains trans. {	0.2	D2
		480.0	D2
S1- S12	W/and switches	—	J5
S13	Mains sw, g'd R12	—	G5

## ALLANDER - MSU4

### DRIVE CORD REPLACEMENT

Ninety inches of the normal flax fishing line is required to replace the tuning drive cord, this length giving an ample margin for tying off.

The scale should be removed (5BA nuts with washers and clamps), together with top and bottom rails, and the gang should be turned to minimum capacitance, when the gang drum assumes the position shown in the sketch (Cols. 5 and 6), where the cord system is shown when completed.

Pass one end of the cord inwards through the slot in the drum groove, and tie it to the free end of the spring, then run the cord round the pulleys as shown in the sketch, taking particular care to use the correct pulley of each pair.

Finally, tie off the free end of the cord to the same end of the spring as the first end, when the tension should be sufficient to open the spring to about  $1\frac{1}{2}$  times its closed length, and fit the cursor as shown in the sketch.

The method of attachment to the cord is shown in the enlarged sketch inset, and is the same at each end of the cursor, which can be slid along the cord to its approximate position and finally adjusted, after replacing the scale, as explained under "Circuit Alignment." Before tightening up the four scale assembly nuts, see that the stop nuts in front of the pulleys are suitably placed.

### CIRCUIT ALIGNMENT

These operations may be carried out with the chassis in the cabinet if the detachable bottom cover is removed (two round-head wood screws).

**I.F. Stages.**—Switch set to M.W., turn gang to minimum capacitance and volume control to maximum, connect signal generator (via an  $0.1\ \mu\text{F}$  capacitor) to control grid (top cap) of **V1** and the **E** socket, feed in a 465 kc/s (645.16 m) signal, and adjust the cores of **L17**, **L16**, **L15** and **L14** (location references B4, A4), in that order, for maximum output.

**R.F. and Oscillator Stages.**—With the gang at maximum capacitance the cursor should coincide with the high wavelength ends of the three scales. It may be adjusted in position by rotating the drive drum on the gang spindle after loosening its grub screw. Transfer "live" signal generator lead to **A** socket, via a suitable dummy aerial.

**L.W.**—Switch set to L.W., tune to 857 m on scale, feed in an 857 m (350 kc/s) signal, and adjust **C37** (I7) and **C31**

(I5) for maximum output. Tune to 1,875 m on scale, feed in a 1,875 m (160 kc/s) signal, and adjust **C34** (H7) for maximum output. Repeat these operations.

**M.W.**—Switch set to M.W., tune to 200 m on scale, feed in a 200 m (1,500 kc/s) signal, and adjust **C36** (I7) and **C30** (I5) for maximum output. Tune to 500 m on scale, feed in a 500 m (600 kc/s) signal, and adjust **C33** (J7) for maximum output. Repeat these adjustments.

**S.W.**—Switch set to S.W., tune to 15 Mc/s on scale, feed in a 15 Mc/s (20 m) signal, and adjust **C35** (J7) and **C29** (H5) for maximum output.

**I.F. Filter.**—Switch set to M.W., tune to 322 m on scale, feed in a 465 kc/s (645.16 m) signal, and adjust the core of **L1** (J8) for minimum output.

Sketch showing the outline of the tuning drive system, as seen from the front right-hand corner of the chassis when the gang is at minimum. The method of attaching the ends of the cursor to the cord is shown inset in the centre of the drawing.

