

McMICHAEL - MT102

Transistor Table

Transistor	Base (V)	Emitter (V)	Collector (V)
TR1 OC44 ..	1.05	1.25	6.8
TR2 OC45 ..	0.65	0.55	6.8
TR3 OC45 ..	0.95	0.83	6.8
TR4 OC81D	0.9	0.8	8.9
TR5} OC78 pair	0.15	—	9.0
TR6}			

Coils*

L1	1.0	C3
L2	3.5	B3
L3	9.0	C3
L4	—	C3
L5	—	C3
L6	2.0	C3
L7	1.5‡	C3
L8	—	C3
L9	1.0‡	B2
L10	—	B2
L11	0.5‡	B2
L12	0.5	B2
L13	2.5	B1

Resistors

R1	47kΩ	D2
R2	12kΩ	D3
R3	3.9kΩ	C2
R4	68kΩ	C2
R5	1.2kΩ	B3
R6	680Ω	C2
R7	22kΩ	C2
R8	4.7kΩ	C2
R9	3.9kΩ	B2
R10	1kΩ	C2
R11	1kΩ	B2

R12	8.2kΩ	C2
R13	5kΩ	B3
R14	1kΩ	A3
R15	68kΩ	A3
R16	22kΩ	A3
R17	1kΩ	A3
R18	1kΩ	A3
R19	4.7kΩ†	A3
R20	91Ω†	A2
R21	680kΩ	A2
R22	4.7Ω	A2

Capacitors

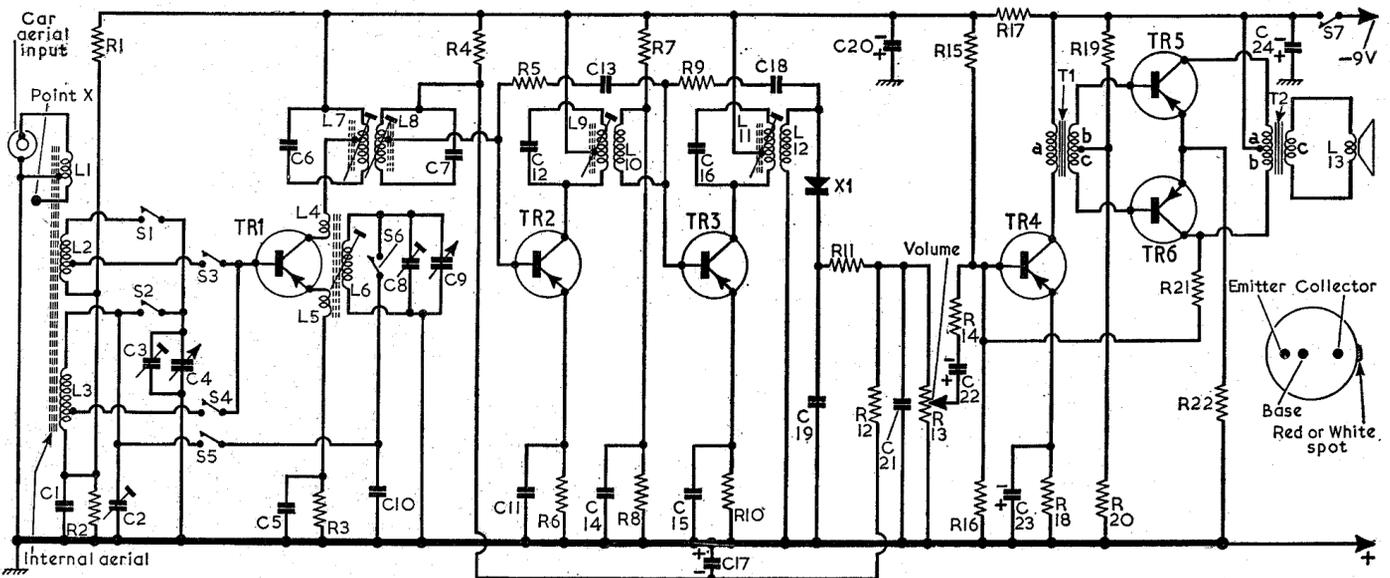
C1	0.1μF	D3
C2	—	D3
C3	—	D2
C4	—	C2
C5	0.01μF	C2
C6	300pF	C3
C7	300pF	C3
C8	—	D3
C9	—	C2
C10	230pF	C3
C11	0.04μF	B2
C12	250pF	C2
C13	56pF	B3
C14	0.1μF	C2

C15	0.04μF	B2
C16	250pF	B2
C17	8μF	C2
C18	18pF	B2
C19	0.04μF	B2
C20	100μF	A3
C21	0.04μF	B2
C22	8μF	B3
C23	8μF	B3
C24	200μF	B3

Miscellaneous*

T1	{ a 200.0 } A2	
	{ b+c 45.0‡ }	
T2	{ a 1.8 } A1	
	{ b 1.6 }	
	{ c — }	
X1	OA70	B2
S1-S6	—	C3
S7	—	B3

* Approximate D.C. resistance in ohms.
 † See "Transistor Analysis".
 ‡ Total winding.
 § Available sections



CIRCUIT ALIGNMENT

Equipment Required.—A signal generator covering M.W. and L.W. ranges that can be 30 per cent amplitude modulated and has a low impedance output: an output indicator in the form either of an output meter with 3Ω load or a 0-50 D.C. milliammeter; and a dummy aerial.

If the milliammeter is used as a resonance indicator it should be inserted in the battery supply lead, and its reading during alignment should not exceed 20mA. The dummy aerial is made up of two capacitors of 22pF and 47pF connected in series across the low impedance output of the signal generator. The signal to the receiver should be taken from the terminals of the 47pF. All cores should be set to the first peak from the outer position.

To reach the core adjustment of L7 it is necessary to remove the printed wiring board from the front panel. This is done by unscrewing the two brass pillars at opposite ends of the board and a 4BA nut half-way between them, then pulling off a spring clip at each end of the metal speaker fret which hold the top of it to the plastics control panel. The two can then be separated to the extent of the output connections, and if the panel is tilted the core can be reached.

I.F. Stages.—Connect up the output indicator and connect the signal generator via the dummy aerial to the aerial socket, switch the receiver to M.W. and turn volume and tuning controls fully clockwise. Feed in a 470kc/s signal and adjust the cores of L11, L9 (B2), L8 (C3) and L7 (underneath location C3), for maximum output, keeping input low. If two peaks are found, use that reached first from the outer position.

Repeat the adjustments to L7 and L8.

M.W.—Feed in a 530kc/s signal, tune to 565m on scale, and adjust L6 core (C3) for maximum output. Feed in a 1,500kc/s signal, tune to 200m on scale, and adjust C8 (D3) for maximum output. Repeat the last two operations.

Remove dummy aerial, and connect signal generator output leads to tag marked "Point X" on aerial rod (C3) and chassis tag next to it, which loosely couples the signal generator to the aerial rod. Feed in a 600kc/s signal, tune it to 500m, and adjust L2 for maximum output by moving it along the ferrite rod. If the coil is fixed it can be released by warming the fixing cement. Feed

in a 1,400kc/s signal, tune to 214m on scale, and adjust C3 for maximum output. Repeat these two operations for optimum results, then seal the coil in position.

L.W.—Feed in a 170kc/s signal, tune to 1,760m on scale, and adjust the position of coil L3 on the rod as before for maximum output. Feed in a 250kc/s signal, tune to 1,200m on scale, and adjust C2 (D3) for maximum output. Repeat these two adjustments for optimum results, then seal the coil.

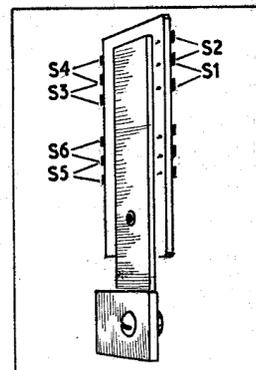


Diagram of the waveband switch unit. Switches S3 - S6 shown at the left-hand edge are the ones nearest the chassis.