

# EKCO MBT414

## Resistors

R1	56kΩ	A2
R2	10kΩ	A2
R3	3.3kΩ	B2
R4	68kΩ	B2
R5	8.2kΩ	B2
R6	680Ω	B2
R7	4.7kΩ	B2
R8	22kΩ	B2
R9	4.7kΩ	C2
R10	1kΩ	C2
R11	390Ω	A2
R12	470Ω	C2
R13	2.2kΩ	B2
R14	68kΩ	B2
R15	22kΩ	C2
R16	680Ω	C1
R17	1MΩ	B2
R18	1kΩ	C1
R19	560Ω	C2
R20	—	†
R21	100Ω	B1
R22	4.7Ω	B1
R23§	4.7kΩ	B2
RV1	5kΩ	A2
RV2	—	C1
RV3	5kΩ	C3

## Capacitors

C1	344pF	A1
C2	25pF	A1
C3	83pF	C1
C4	0.04μF	A2
C5	0.01μF	B2
C6	250pF	B2
C7	286pF	A2
C8	229pF	A1
C9	25pF	A2
C10	200pF	A1
C11	80pF	A1
C12	8μF	B2
C13	0.04μF	B2

C14	250pF	B2
C15	175pF	C2
C16	0.04μF	C2
C17	0.1μF	C2
C18	250pF	C2
C19	60pF	C2
C20	0.03μF	C2
C21	0.03μF	C2
C22	100μF	B1
C23	8μF	B2
C24	100μF	C1
C25	100μF	B1
C26	0.25μF	A1
C27	0.04μF	B2
C28	0.04μF	B2
C29	200μF	C3
C30	750μF	C3

## Coils\*

L1	—	B1
L2	1.4	A1
L3	—	A1
L4	11.2	C1
L5	—	C1

## Transformers\*

T1	{ Pri 153.0 Sec 37.0 Sec 37.0 }	C1
T2	{ Pri 3.6 Sec 3.6 Sec 0.22 }	B1
T3	{ a 10.5 b 100.0 c 1,400.0 }	A3

## Miscellaneous

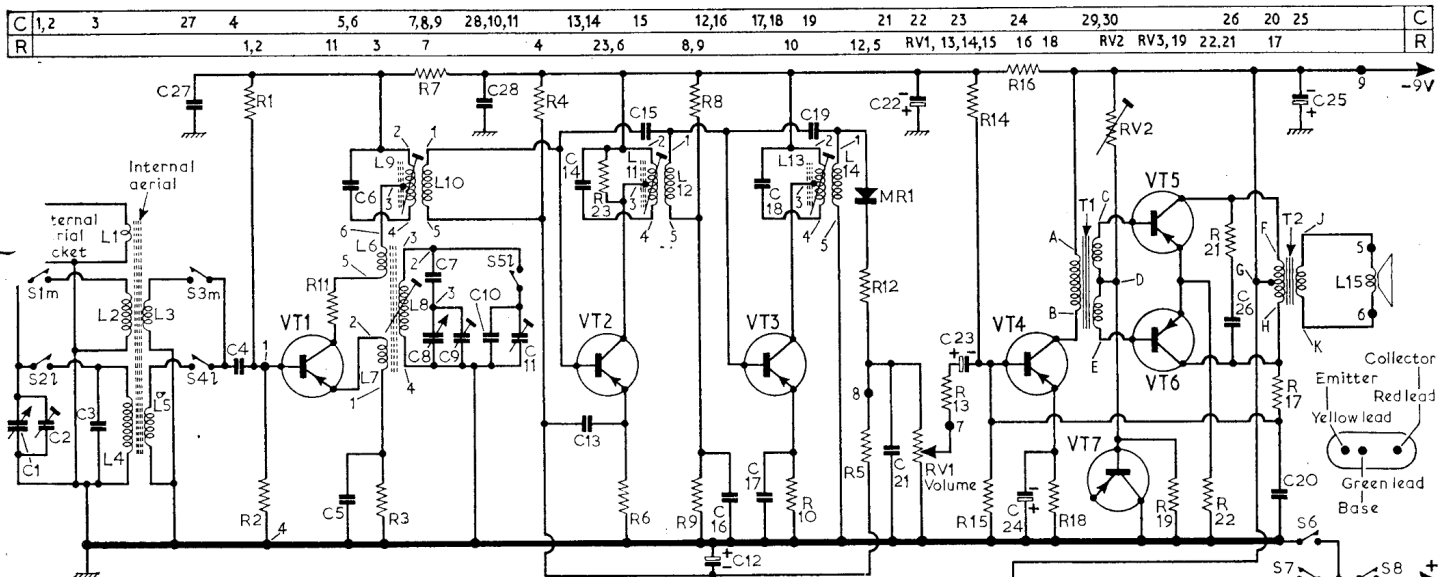
MR1	NKT155	C2
MR2	5D826¶	C3
MR3	NKT110-B	B3
S1-S5	—	A2
S6, S9	—	A3
S7, S8	—	B2

†No component.

\*Approximate d.c. resistance in ohms.

§In some receivers only.

¶Westinghouse.



Transistor Table

Transistor	Emitter (V)	Base (V)	Collector (V)
VT1 NKT 152	0.90	0.85	6.4
VT2 NKT 153/35	0.65	0.70	7.2
VT3 NKT 154/35	0.95	1.0	7.2
VT4 NKT 254	1.40	1.4	8.8
VT5 NKT 251	—	0.17	9.0

Transistor	Emitter (V)	Base (V)	Collector (V)
VT6 NKT 251	—	0.17	9.0
VT7 NKT 259*	—	—	—
VT8 NKT 251	9.00	—	—

\*Emitter Base o/c.

## CIRCUIT ALIGNMENT

**Equipment Required.**—A signal generator with a 30 per cent modulated output at 1,000c/s or 400c/s; an output meter or a 0.5V a.c. voltmeter; an r.f. coupling coil; two 0.1μF capacitors and a bladed type insulated trimming tool.

- 1.—Connect the output meter in place of the loudspeaker, or the 0.5V a.c. voltmeter across the loudspeaker speech coil. Set the volume control to maximum output.
- 2.—Switch receiver to m.w. and tune to a quiet spot around 450m. Insert a 0.1μF capacitor in each signal generator lead and connect the signal generator across L3.
- 3.—Feed in a 470kc/s signal and adjust the generator for an output of 50mW in the out-

put meter (0.5V on the a.c. voltmeter). Adjust the cores of L13 (location reference C2), L11 (C2) and L9 (B2) in that order for maximum output. Repeat as necessary.

- 4.—Disconnect the signal generator and output meter and replace the printed panel in the case. Fit the tuning knob so that with the gang fully meshed, the datum marks line up with the brass studs on the case.
- 5.—Connect the signal generator output leads to the r.f. coupling coil and place the coil at a distance of approximately 12in from the centre of ferrite rod, coaxial with the rod on the L2 side. Connect the output meter at the panel end of the loud-speaker leads.

Note: The oscillator coil L8 can be adjusted through the foil side of the printed panel and capacitors C2 and C9 through the escutcheon aperture. C2 is the upper adjustment.

- 6.—Tune receiver to 500m. Feed in a 600kc/s signal and adjust L8 (B2) and L2 (A1) for maximum output.

- 7.—Tune to 194m, feed in a 1,546kc/s signal and adjust C9 for maximum output. Feed in a 1,400kc/s signal and tune receiver to this signal, then adjust C2 for maximum output.

- 8.—Repeat operations 6 and 7 until no further improvement can be obtained.

- 9.—Switch receiver to l.w. and tune to 1,400m. Feed in a 214.3kc/s signal and adjust C11 (A1) and L4 (C1) for maximum output.

Where it is not convenient to use the coupling loop method of signal injection (the preferred method), the external aerial socket may be used although this may introduce an error at the h.f. end of the m.w. band.

