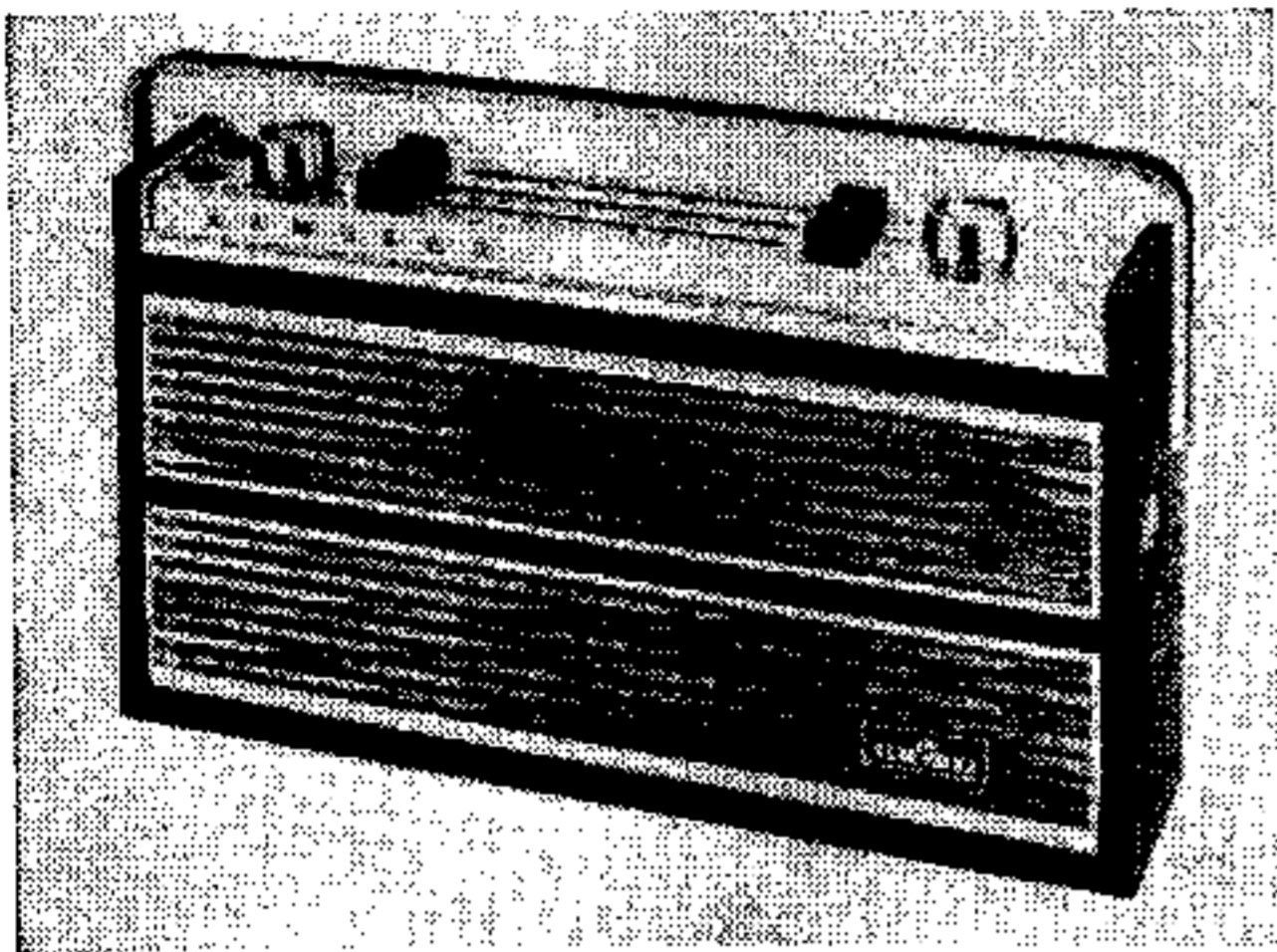


Ned. Ver. v. Historie v/d Radio



Appearance of RGD RR222

PROVIDING a separate switched input circuit when operating with a car type aerial, KB KR022 and RGD RR222 are electrically identical, incorporating modular construction and press-button waveband switching.

Wavebands covered are l.w. (1,175-1,940m) and m.w. with bandspread over two halves giving m.w.1 (275-555m) and m.w.2 (185-280m).

A tape socket for record and playback is featured, also a switched earphone socket providing a mute to the loudspeaker when a miniature jack plug is inserted.

At maximum volume a 7in by 3½in 8Ω loudspeaker delivers 850mW of audio power. Power being provided by an Ever Ready PP9 or equivalent type battery.

TRANSISTOR ANALYSIS

Transistor voltages given in the table below, were taken from information supplied by the manufacturers. They were measured on a 20,000Ω/V meter and are negative with respect to battery positive.

CIRCUIT ALIGNMENT

Equipment Required.—An a.m. signal generator (output impedance 10Ω) capable of being modulated 30 per cent at 1kc/s; an audio output meter with an impedance of 8Ω; a screened test coil made up with 85 turns of enamel covered wire, wound on a 2in diameter former; a dummy aerial constructed as illustrated overleaf; 0.1μF and 18pF capacitors; an oscilloscope; an a.f. signal generator and a 100kΩ resistor.

Before starting the alignment procedure it is advisable to check the output balance as described in the following paragraph.

Output Balance Adjustment.—To check the balance of output transistors TXa3/TXa4, first ensure that the battery is in good condition and provides a nominal 9V on load. Connect the output meter via a miniature jack plug to the earphone socket (this disconnects the loudspeaker), and the oscilloscope across the input terminals of the output meter. Feed in a 1kc/s sine wave via the 100kΩ resistor to the top of the volume control R1 (the tape socket is a convenient point), turn volume control to maximum and adjust the signal generator attenuator for a measured 700mW as indicated on the output meter.

Alternatively an Avo model 8 set to the 10V d.c. range may be connected between the junction of Ra13/Ra14 and chassis (positive to chassis). Adjust

(Continued overleaf col. 1)

Transistor Table

Transistor	Emitter (V)	Base (V)	Collector (V)
TXm1	AF117	0.95	7.5
TXk1	AF117	1.6	—
TXk2	OC70	—	4.0
TXa1	AC157	4.3	0.35
TXa2	AC113	0.25	0.35
TXa3	AC154	5.0†	9.0
TXa4	AC157	5.0†	0

† Measured at the junction of Ra13 and Ra14 Quiescent current 19mA.

KB KR022 "Commodore" RGD RR222 "Rambler"

Transistored Portable Radio Receivers

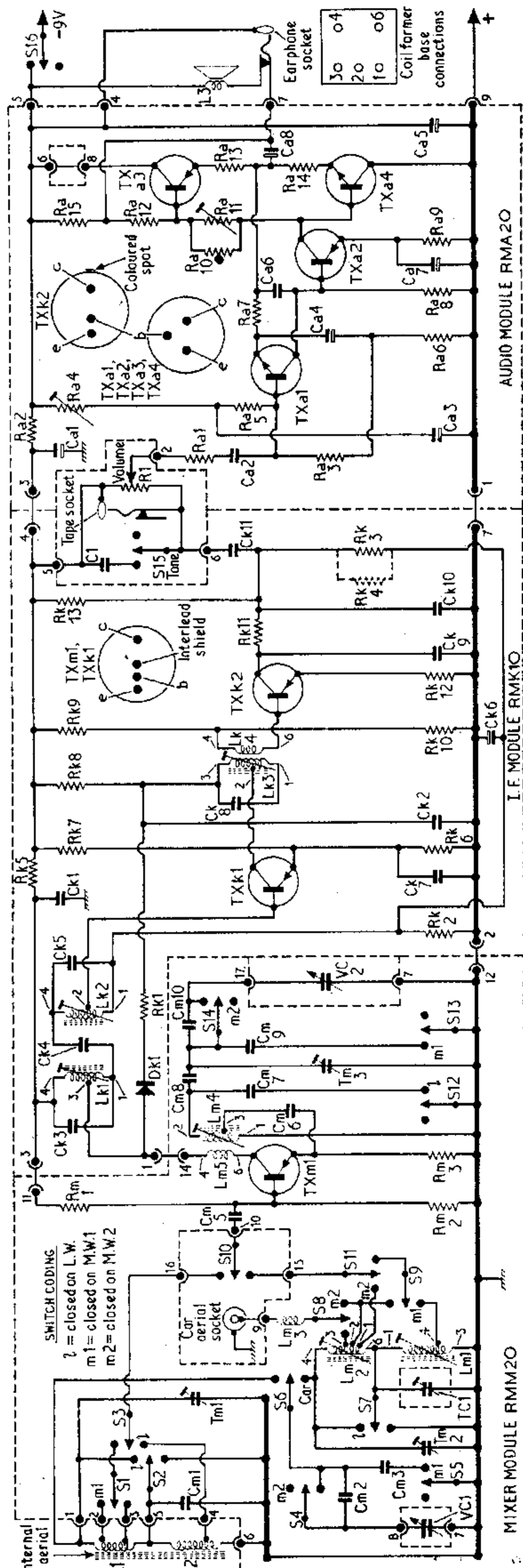
- Resistors**
- Rm1 39kΩ F3
 - Rm2 6.8kΩ F3
 - Rm3 1kΩ F3
 - Rk1 680Ω
 - Rk2 12kΩ
 - Rk3 15kΩ
 - Rk4 15kΩ
 - Rk5 100Ω
 - Rk6 330Ω
 - Rk7 4.7kΩ **
 - Rk8 820Ω
 - Rk9 47kΩ
 - Rk10 100Ω
 - Rk11 100Ω
 - Rk12 270Ω
 - Rk13 18kΩ
 - Ra1 6.8kΩ C2
 - Ra2 180Ω C2
 - Ra3 12kΩ C2
 - Ra4 10kΩ D2
 - Ra5 10kΩ C2
 - Ra6 10Ω C2
 - Ra7 1kΩ C2
 - Ra8 820Ω D2
 - Ra9 27Ω D2
 - Ra10 VA1034 D2
 - Ra11 500Ω D2
 - Ra12 430Ω D2
 - Ra13 1Ω D2
 - Ra14 1Ω D2
 - Ra15 390Ω C2
 - R1 20kΩ H4

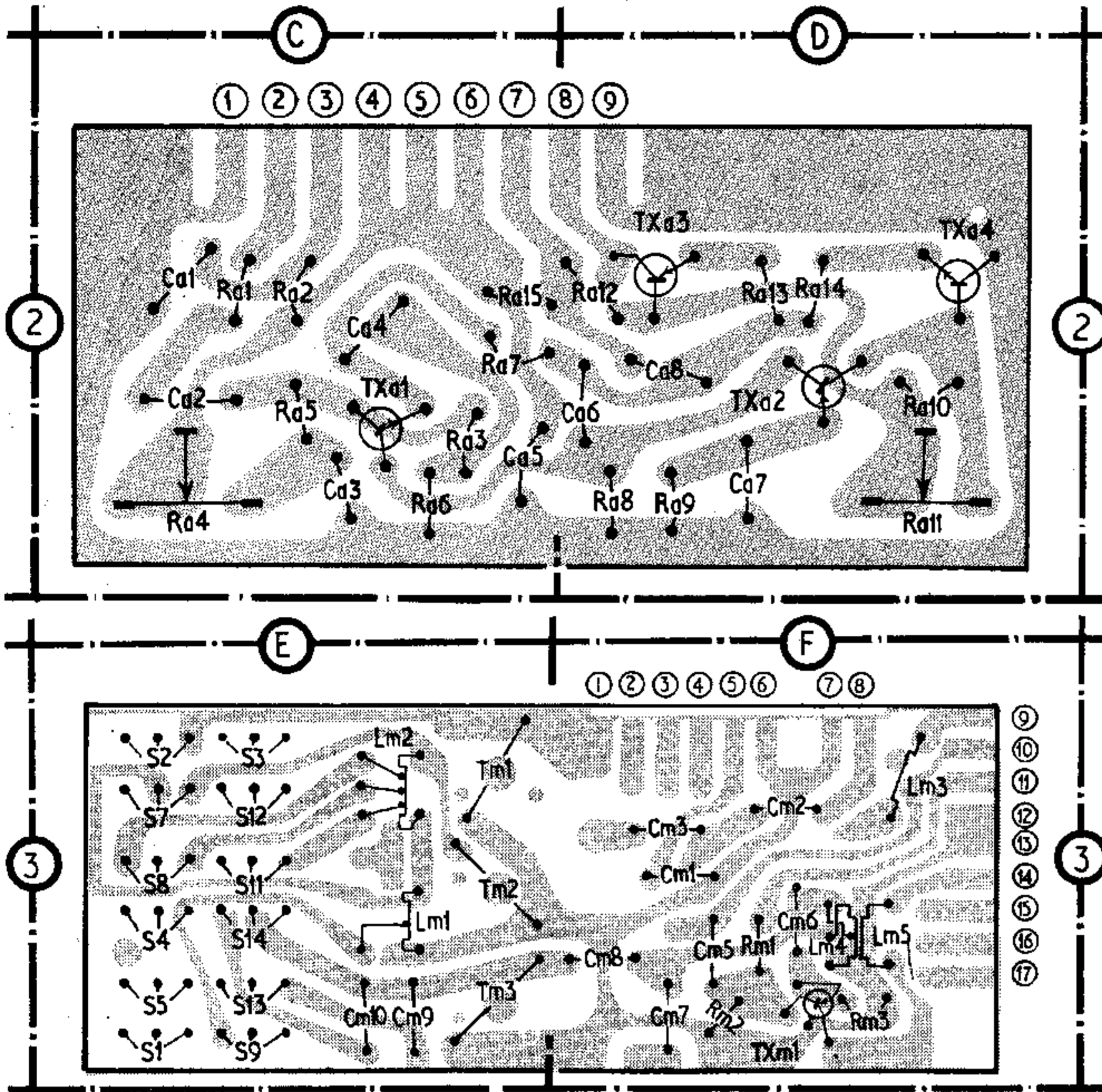
- Capacitors**
- Cm1 125pF F3
 - Cm2 118pF F3
 - Cm3 69pF F3
 - Cm5 0.047μF F3
 - Cm6 0.02μF F3
 - Cm7 466pF F3
 - Cm8 520pF F3
 - Cm9 69pF E3
 - Cm10 118pF E3
 - Tm1 30pF E3
 - Tm2 30pF E3
 - Tm3 50pF E3
 - Ck1 0.047μF
 - Ck2 0.047μF
 - Ck3 250pF
 - Ck4 2.7pF
 - Ck5 250pF
 - Ck6 25μF **
 - Ck7 0.47μF
 - Ck8 250pF
 - Ck9 2,200pF
 - Ck10 4,700pF
 - Ck11 0.22μF
 - Ca1 160μF C2
 - Ca2 0.22μF C2
 - Ca3 50μF C2
 - Ca4 320μF C2
 - Ca5 160μF C2
 - Ca6 1,800pF D2
 - Ca7 200μF D2
 - Ca8 320μF D2
 - C1 0.022μF D2
 - VC1, VC2 — G4
 - TC1 140pF G4

- Coils***
- Lm1 11.6Ω F3
 - Lm2 2.8Ω F3
 - Lm3 — F3
 - Lm4 1.8Ω F3
 - Lm5 — F3
 - Lk1 5.5Ω
 - Lk2 5.5Ω **
 - Lk3 3.7Ω
 - Lk4 —
 - L1 1.8Ω G4
 - L2 7.8Ω H4
 - L3 8Ω H4

- Miscellaneous**
- S1-S5, S7-S9, S11-S14 — E3
 - S6, S10, S15, S16 — H4
 - Dk1 CG64H **

* Approximate d.c. resistance in ohms.
** Wired on type RMK10 panel (see Service Sheet 1841).





R.f. (upper) and a.f. (lower) modules with component locations.

Circuit Alignment—Continued

Ra4 for a meter reading of 5V.

Remove test equipment, turn volume control to minimum and set Ra11 fully anti-clockwise. Connect a milliammeter in series with the negative power supply lead, in order to measure the quiescent current. Adjust Ra11 to increase the initial quiescent current by 4mA. The final quiescent current should be between 16mA and 19mA.

Alignment Procedure.—All r.f. and i.f. tuning adjustments are to be made with an a.m. signal modulated to a depth of 30 per cent at 1kc/s. The signal input should be progressively attenuated with increasing receiver sensitivity in order to maintain an output power of approximately 50mW as indicated on the output meter, with the volume control at maximum.

1.—Switch receiver to m.w.2 and rotate tuning gang to maximum capacitance. Connect output meter via a miniature jack plug to the earphone socket and connect the signal generator output via the 0.1µF capacitor to the base of the mixer/oscillator TXm1 (common pole of S3 is a convenient point).

- 2.—Feed in a 470kc/s a.m. signal and adjust Lk3, Lk2 and Lk1 for maximum output, repeating the adjustments until no further improvement is obtained. Disconnect signal generator.
- 3.—Ensure car press-button is released, connect the signal generator to the test coil and position the coil co-axially with the ferrite rod 6½in from L1.
- 4.—Switch receiver to m.w.1, turn tuning gang to maximum capacitance and check that the cursor is in line with the end of the scale window. Feed in a 540kc/s a.m. signal and adjust Lm4 for maximum output.
- 5.—Switch receiver to m.w.2, turn tuning gang to minimum capacitance. Feed in a 1,620kc/s a.m. signal and adjust Tm3 for maximum output.
- 6.—Repeat operations 4 and 5 for optimum results.
- 7.—Switch receiver to m.w.1 and tune to 500m calibration mark. Feed in a 600kc/s a.m. signal and adjust L1 on the ferrite rod for maximum output.
- 8.—Switch receiver to m.w.2 and tune to 200m calibration mark. Feed in a 1,500kc/s a.m. signal and adjust Tm1 for maximum output.

- 9.—Repeat operations 7 and 8 for optimum results.
- 10.—Switch receiver to l.w., feed in a 225kc/s a.m. signal and tune receiver to this signal. Adjust L2 on ferrite rod for maximum output.
- 11.—Depress car press-button, set Tc1 to maximum capacitance (screw up tight but not excessively), and switch receiver to l.w. Feed in a 225kc/s a.m. signal via the 18pF capacitor and car aerial socket. Adjust Lm1 for maximum output.
- 12.—Remove 18pF capacitor and connect the signal to the car aerial socket via the dummy aerial.
- 13.—Switch receiver to m.w.1, feed in a 600kc/s a.m. signal, and tune receiver to this signal. Adjust Lm2 for maximum output.
- 14.—Switch receiver to m.w.2, feed in a 1,500kc/s a.m. signal and tune receiver to this signal. Adjust Tm2 for maximum output.
- 15.—Repeat operations 13 and 14 for optimum results.

Car Aerial Matching.—To match the input circuits to a car aerial, depress the car and l.w. press-buttons and tune to Radio 2 (B.B.C. 2 on scale) 1,500m.

Telescope the car aerial in order to reduce the input signal strength to a minimum. Adjust Tc1 for maximum output. The m.w. does not need re-aligning.

If an exceptionally long aerial lead is used, say 10 feet or more, m.w.2 can be re-aligned by tuning to a weak signal at about 200m and adjusting Tm2 for maximum output.

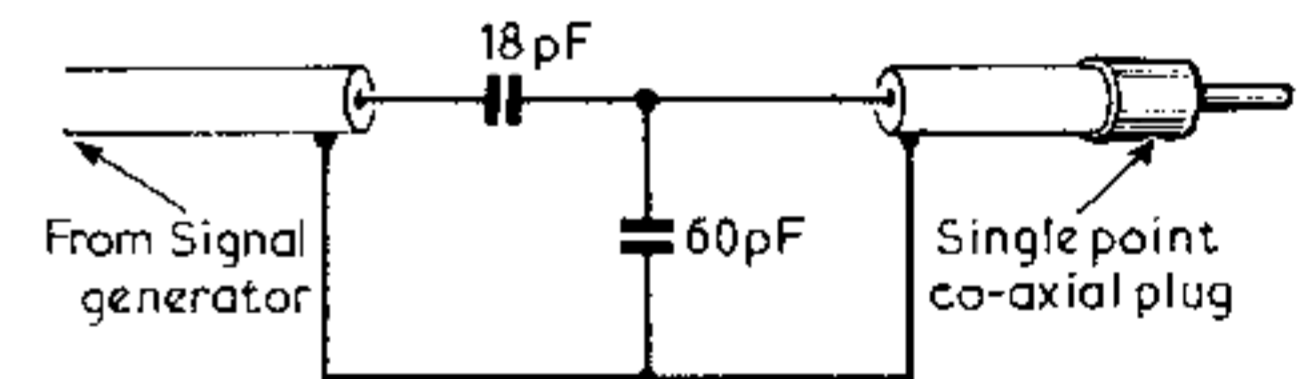
GENERAL NOTES

The i.f. panel RMK10 used in these receivers is identical to that used in the KB KR021 and RGD RR221 receivers. Trader Service Sheet 1841 covers these receivers and the printed panel component locations are illustrated. A brief circuit note is also given.

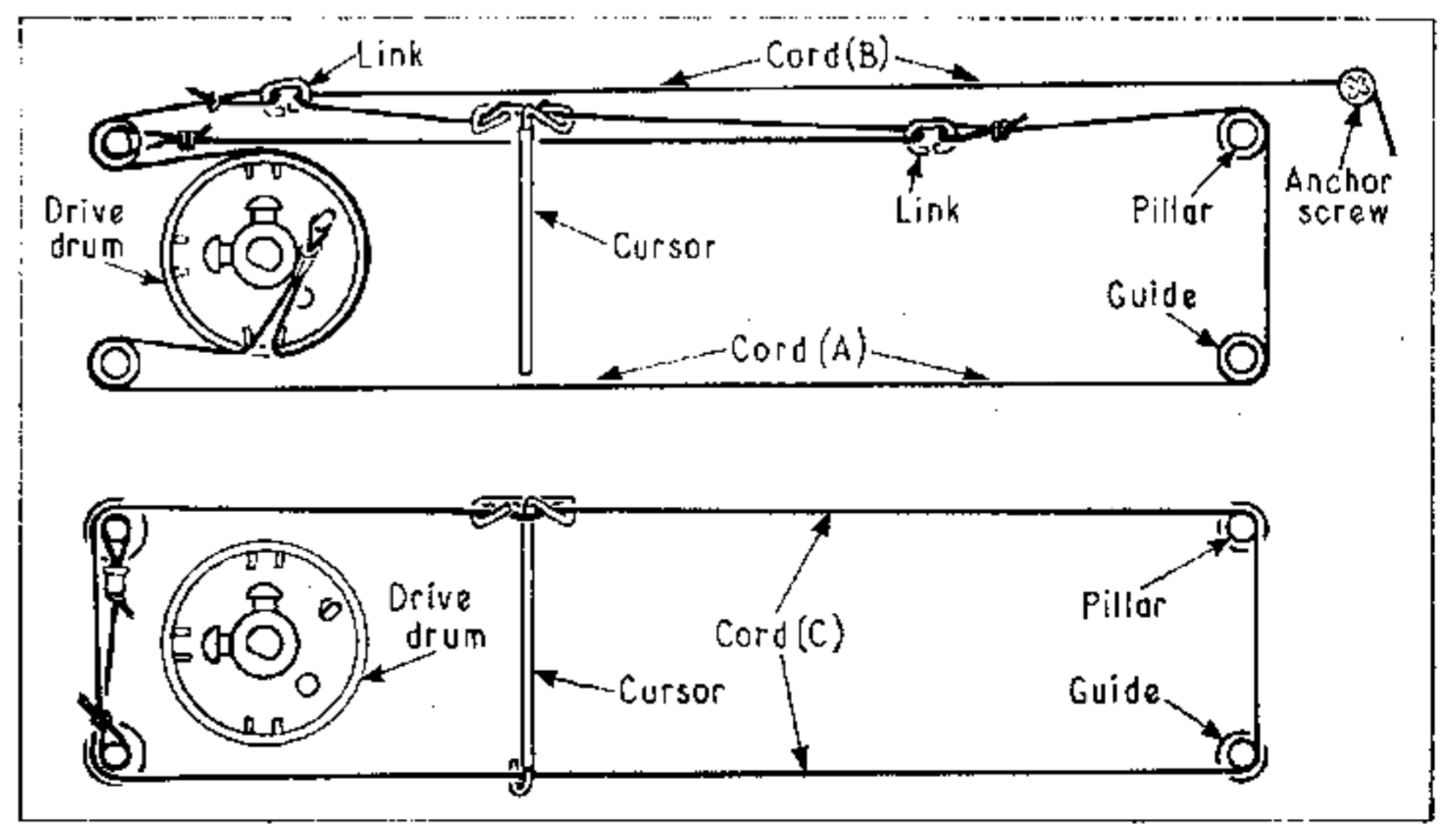
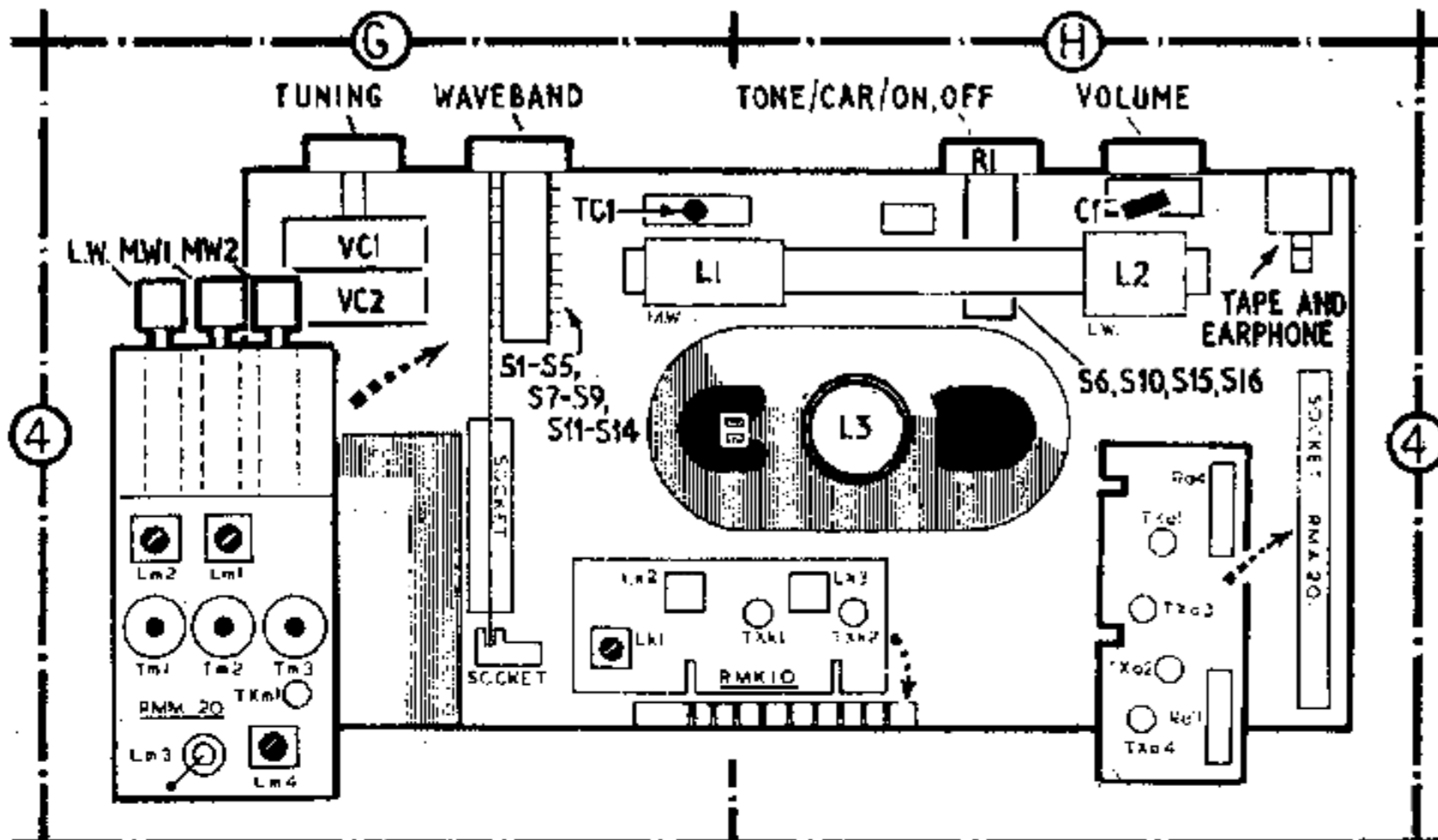
Drive Cord Replacement.—To replace drive cord(s), unscrew coin slotted screw and remove back cover, disconnect and remove battery and card container. Close tuning gang, and pull off leads at tape and earphone sockets (note colour coding of wires). Pull off knobs, then unscrew and remove two Phillips head screws holding the top moulding and scale window in position, one screw to the left of tuning gang, the other just to the right of the car/portable switch, taking care not to damage L2 on ferrite rod.

Prepare cord(s) as follows: cord (A), tie a loop at one end then form and tie a ½in loop at 5in from that end. Measure off sufficient cord so that with a loop tied at the other end, the overall length of cord is 20½in; cord (B) has a loop tied at one end only, and should be 20in overall; cord (C), tie a loop at each end and produce an overall length of 22½in.

With the tuning gang at maximum capacitance, route cord (A) and cord (B) as shown in the upper illustration of drive cord, ensure that cord (A) is routed over the guides. Fit the cursor on cord (B) and with the scale temporarily in position align the cursor with the low frequency end of the scale window. Fit cord (C) (lower illustration) ensuring that the cord only passes over the pillars.



Dummy aerial as referred to in circuit alignment.



Left: General view of receiver with back corner removed. Right: Drive cord assembly.