

Trader

SERVICE SHEET

3335

Fidelity

RAD 26

Portable radio

The Fidelity RAD 26 is a three-band AM / FM portable receiver suitable for battery or a.c. mains operation.

Wavebands covered are long and medium AM, using an internal ferrite aerial, and the FM broadcast band on VHF using an external telescopic aerial. Waveband selection is by push button, as is also the on / off switching and afc on FM.

The tuning scale is marked with the BBC medium wave station positions to be occupied after 23 November 1978.

Volume, tone and tuning controls are rotary.

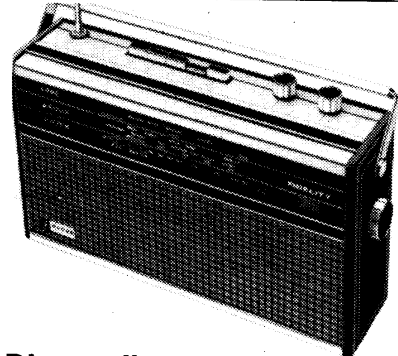
Conversion from battery to mains a.c. operation is automatic on inserting the mains connector on the lead provided. An LED in the tuning dial lights when the receiver is switched on using a mains supply.

An earphone socket is provided for private listening.

Housed in a black plastics cabinet, which has a padded back panel, relieved by silver trim, the RAD 26 has a hinged carrying handle.

Brief Specification

Power supplies	One PP9 battery (9V d.c.) or 240V 50Hz a.c. mains
Consumption	7 watts (a.c. mains operation)
Fuses	100mA (in mains input) 1A (in d.c. output)
Indicator lamp	LED (operative on mains operation only)
Wavebands	AM: LW 150 to 250kHz (1200 to 2000m) MW 525 to 1625kHz (186 to 572m) FM: VHF 87.5 to 108MHz
Intermediate frequencies	AM: 470kHz FM: 10.7MHz
Transistors	11
Diodes	5 (+LED) } (see components list for details)
Audio output	650mW
Loudspeaker	4in (102mm) round, impedance 8 ohms
Earphone	3.5mm jack, minimum impedance 8 ohms
Dimensions	Height* Width Depth 10in 13¼in 3½in (254mm)(349mm) (89mm) *handle raised
Manufacturer	Fidelity Radio Limited, Victoria Road, London NW10 6ND 01-965 8771
Service	as above, 01-965 9235/6

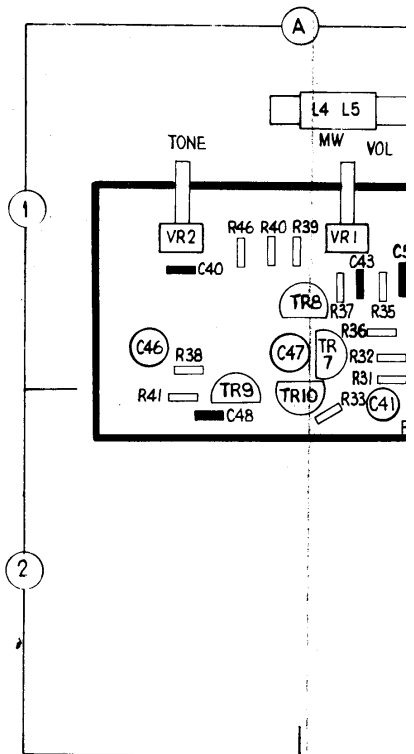
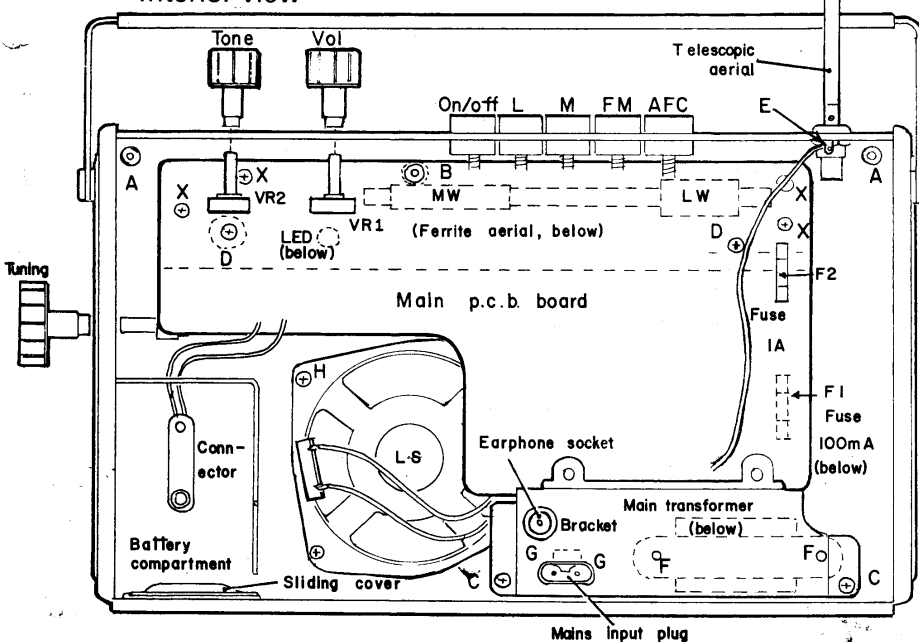


Dismantling

(see interior view diagram)

1. Disconnect mains lead from receiver (if in use), open battery compartment cover and remove battery.
2. Remove two short screws entering pillars A, and one long screw B which passes through into the cabinet front part. Carefully lift off the cabinet back, prising it up from the cabinet top edge and then freeing the bottom edge lugs from the slots in the cabinet bottom.

Interior view



3. To remove chassis

(a) Ease off volume, tone and tuning control knobs.

(b) Remove two screws C from mains transformer bracket.

(c) Remove two screws D from upper part of main p.c. board. **NOTE:** Do NOT slacken the other screws X)

(d) Depress the on/off switch button, hold down all the other buttons, and ease them clear of the cabinet top aperture, then carefully manoeuvre the chassis out from the cabinet. Be careful not to damage the dial cursor or the dial cord.

(e) For complete removal of the chassis, unsolder the FM input lead from the telescopic aerial tag E, unsolder the loudspeaker connections, and pass the battery connector through the hole in the battery compartment.

Refit the chassis in the reverse sequence.

4. To remove mains transformer — with the chassis removed, release two screws F.

5. To remove mains input plug, remove two screws G.

6. To remove loudspeaker — remove four screws H.

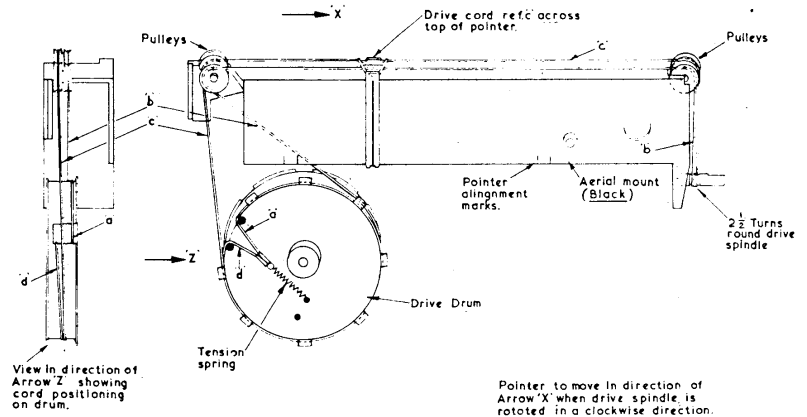
RE-ASSEMBLY NOTE. Before refitting back panel, check that battery compartment sliding cover is correctly in place.

Alignment

Equipment required

AM signal generator covering 150 to 1700kHz, modulation 1kHz at 30 per cent.

FM signal generator, covering 10.7, 87



Dial cord routing

to 108MHz, modulation 1kHz, deviation ± 25kHz.

Sweep marker generator

Oscilloscope

Suitable output meter (VTVM)

Preliminaries

Allow test equipment to warm up before beginning alignment. Progressively reduce signal generator output (which should not exceed 50mW) as circuits come into alignment to avoid agc action on AM, "limiting" on FM. See p.c. board diagram for location of coils and trimmers.

AM

I.F. Stages

Connect signal generator output across aerial section of tuning gang VC1. Generator should be tuned to 470kHz, modulated. Set volume control to maximum, and disable AM oscillator by short-circuiting resistor R7. Select "MW" and tune receiver to low frequency end of scale. Connect output meter across loudspeaker terminals.

Adjust AM IFT's **IFT8, IFT7** and **IFT6**, in that order, for maximum. Remove short-circuit from **R7**.

R.F. Stages

Inject r.f. signals from generator via an inductive loop to the ferrite aerial. Connect output meter across loudspeaker terminals.

MW (select "MW")

1. Tune signal generator to 525kHz, receiver to low frequency end of scale. Adjust MW oscillator coil (red) for maximum.
2. Retune signal generator to 1625kHz, receiver to high frequency end of scale. Adjust MW oscillator trimmer **TC2** for maximum.
3. Repeat steps 1 and 2 for optimum result.
4. Tune signal generator and receiver to 600kHz. Adjust MW aerial coils **L4/L5** (by sliding these along ferrite rod) for maximum.
5. Retune signal generator and receiver to 1440 kHz. Adjust MW oscillator trimmer **TC1** for maximum.

LW (select "LW")

7. Tune signal generator to 150kHz, receiver to low frequency end of scale. Adjust LW trimmer **TC5** for maximum.
8. Tune signal generator and receiver to 200kHz, adjust LW aerial coil **L6** (on ferrite rod) for maximum.

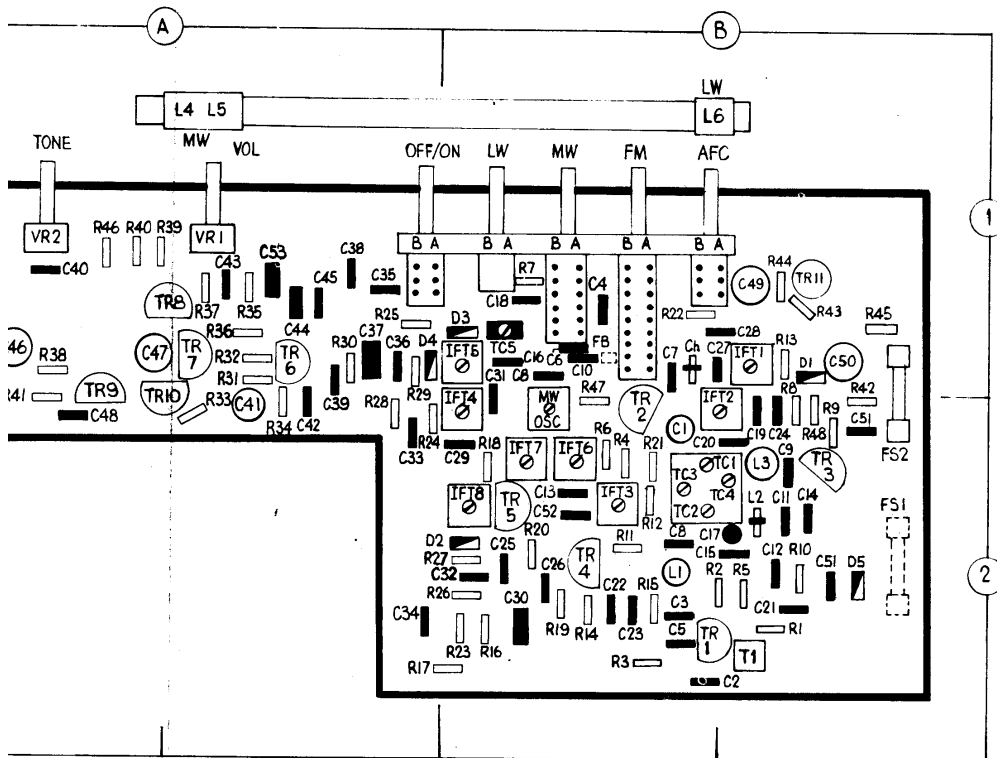
FM (select "FM")

I.F. Stages

Connect sweep generator, set to sweep 10.7MHz± 100kHz, across FM oscillator section **VC4** of tuning gang. Connect

(continued overleaf)

Main p.c. board



Components

Resistors

- R1 3.3kΩ B2
- R2 690 B2
- R3 120kΩ B2
- R4 1.8kΩ B2
- R5 820Ω B2
- R6 100Ω B2
- R7 58kΩ B1
- R8 120Ω B1
- R9 18kΩ B2
- R10 6.8kΩ B2
- R11 120kΩ B2
- R12 18kΩ B2
- R13 18kΩ B1
- R14 680Ω B2
- R15 470Ω B2
- R16 33kΩ B2
- R17 8.2kΩ A2
- R18 390Ω B2
- R19 1kΩ B2
- R20 3.3kΩ B2
- R21 47kΩ B2
- R22 150kΩ B1
- R23 8.2kΩ B2
- R24 1kΩ A2
- R25 1kΩ A1
- R26 10kΩ B2
- R27 6.8kΩ B2
- R28 15kΩ A2
- R29 15kΩ A1
- R30 27kΩ A1
- R31 2.2MΩ A1
- R32 1kΩ A1
- R33 270Ω A2
- R34 18kΩ A2
- R35 1kΩ A1
- R36 120kΩ A1
- R37 180Ω A1
- R38 180Ω A1
- R39 1Ω A1
- R40 1Ω A1
- R41 270Ω A2
- R42 1kΩ B1
- R43 220Ω B1
- R44 1kΩ B1
- R45 560Ω B1
- R46 180Ω A1
- R47 470Ω B1
- R48 2.2kΩ B2

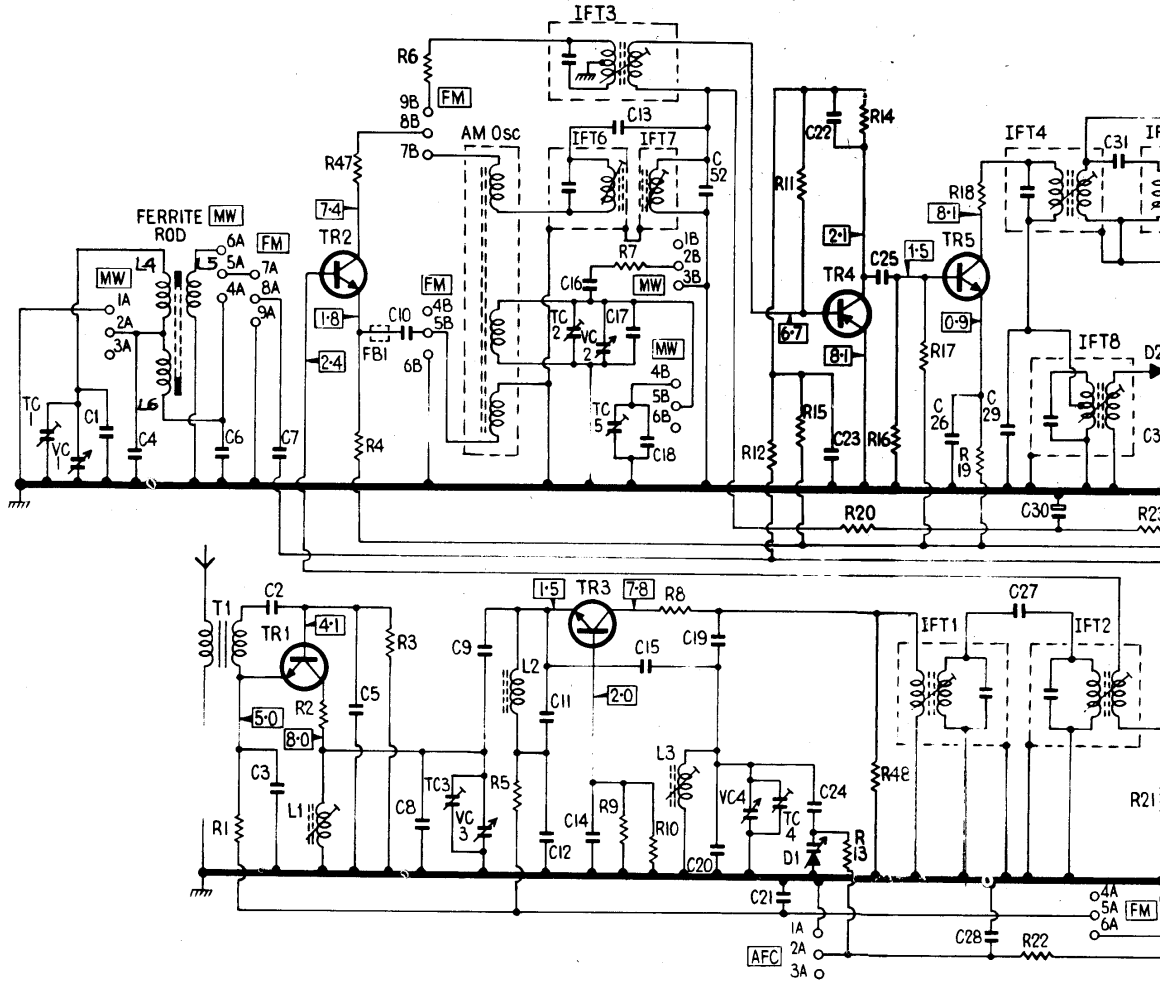
Potentiometers

- VR1 22kΩ* A1
 - VR2 22kΩ* A1
- *variable

Capacitors

- C1 15pF B2
- C2 18pF B2
- C3 33pF B1
- C4 68pF B1
- C5 56pF B1
- C6 2.2nF B1
- C7 47nF B1
- C8 22pF B1
- C9 4.7pF B2
- C10 22nF B1
- C11 56pF B2
- C12 470pF B2
- C13 2.2μF B2
- C14 1nF B2
- C15 4.7pF B2
- C16 295pF B2
- C17 12pF B2
- C18 220pF B1
- C19 25pF B2
- C20 12pF B2
- C21 100nF B2
- C22 100pF B2
- C23 100nF B2
- C24 10pF B2
- C25 4.7nF B2
- C26 100nF B2
- C27 15pF B1
- C28 100nF B1
- C29 150pF B2
- C30 4.7μF B2
- C31 68pF B1
- C32 10nF B2
- C33 330pF A2
- C34 10nF A2
- C35 22nF A1
- C36 330pF A1
- C37 10μF A1
- C38 100nF A1
- C39 1nF A1
- C40 68nF A1
- C41 330μF A2

C	TC1	1	4	6	7	5	10	TC3	9	11	TC2	16	13	18	52	20	TC4	22	23	25	26	29	30	31		
	VC1				2	3		8	VC3		12	14	VC2	TC5	17	15	19	VC4	21	24		28	27			
R					1	2	4	3	6	5		9	7	10				12	11	48	14		18	22	21	
							47													15	13	20	16	17	19	
L		Ferrite Rod		T1						AM Osc	2		IFT3	IFT6	IFT7	3							IFT1	IFT4	IFT8	IFT2



- C42 470pF A2
- C43 470pF A1
- C44 100nF A1
- C45 20nF A1
- C46 330μF A1
- C47 1000μF A1
- C48 4.7nF A2
- C49 470μF B1
- C50 470μF B1
- C51 20nF B2
- C52 100nF B2
- C53 4.7μF A1

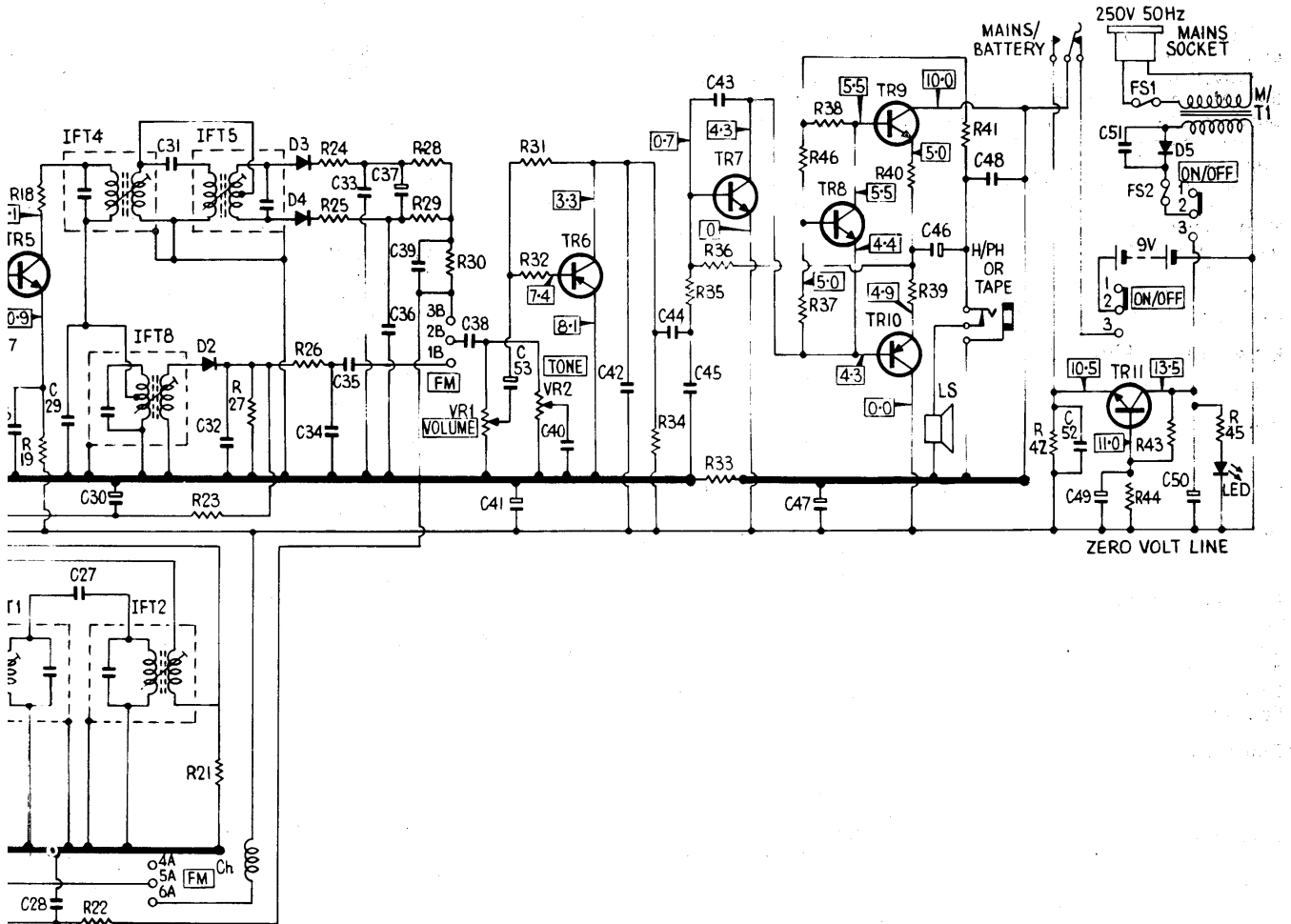
Diodes

- D1 BA102 B1
- D2 AA119 B2
- D3 AA119 B1
- D4 AA119 A1
- D5 1N4001 B2
- D101 ACA129

Transistors

- Tr1 BF195C B2
- Tr2 BF195D B2
- Tr3 BF194B B2
- Tr4 BC159 B2
- Tr5 BF195 B2
- Tr6 BF158 A1
- Tr7 BC148 A1
- Tr8 T6F A1
- Tr9 BC465
- Tr10 or AC127 A2
BC464
- Tr11 or AC128 A2
BC440 B1

29	30	31	32	34	35	33	37	38	53	40	42	44	43	47	46	48	52	51	50			
28	27			36	39			41		45							49					
7	18	22	21	23	27	26	24	28	30	VR1	31	VR2	35	36	46	38	40	41	42	44	43	45
	19					25	29	29	30		32		34	33	37	39						
	IFT4	IFT8	IFT5																			M/T1
	IFT1	IFT2																				



Alignment (continued)

oscilloscope probe to section 2B of FM switch. Inject 10.7MHz modulated signal from generator, and adjust FM discriminator **IFT5** (yellow) until displayed trace is symmetrical about 10.7MHz marker. Adjust FM **IFT4** (white), **IFT3** (green), **IFT2** (black) and **IFT1** (orange) in that order for maximum amplitude of "S" curve.

Repeat adjustments to obtain symmetrical "S" curve with straight line portion passing through zero point at 10.7MHz marker on display.

R.F. Stages

Connect FM signal generator output to telescopic aerial input. Connect output meter across loudspeaker terminals.

1. Tune signal generator to 87.5MHz, receiver to low frequency end of scale. Adjust FM oscillator coil **L3** (by varying turns spacing) for maximum.
2. Retune signal generator to 108MHz,

receiver to high frequency end of scale. Adjust FM oscillator trimmer **TC4** for maximum.

3. Repeat steps 1 and 2 for optimum result.
4. Tune signal generator and receiver to 87.5MHz, adjust FM aerial coil **L1** for maximum.
5. Retune signal generator and receiver to 108MHz, adjust FM aerial trimmer **TC3** for maximum.
6. Repeat steps 4 and 5 for optimum result.