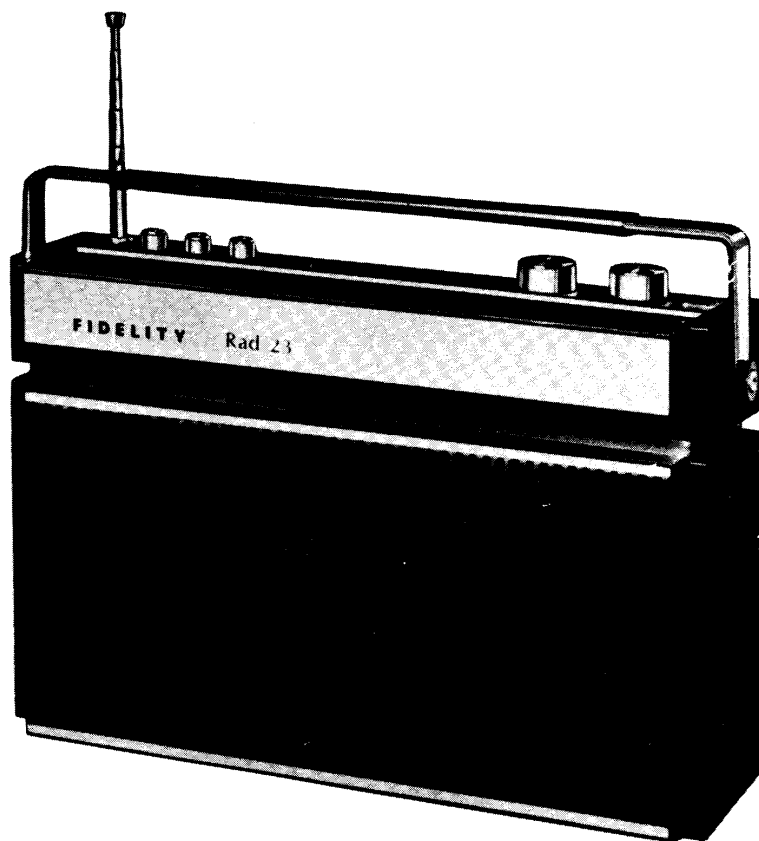


FIDELITY RADIO

RAD 23

PORTABLE RADIO



specification

Transistors	Three BF195, one BF194B, one BF195C, one BF195D, one BC159, one BC149, one AC128 and one AC127
Diodes	Three AA119, one AA129
Volume Control	10k log
Wavebands	LW: 1200–2000m MW: 186–550m FM: 87.5–108MHz
I.F.	A.M.—470kHz F.M.—10.7MHz
Loudspeaker	4 in. round
Facilities	Telescopic aerial; car aerial socket; earphone socket and external supply socket.
Battery	9V. PP9 or equivalent.

This is a portable AM/FM radio receiver with internal aerials, battery and loudspeaker; rear sockets are provided for external aerial, earphone and 9 volt D.C. input.

The F.M. Tuner consists of an R.F. amplifier TR1 (BF 195) followed by self-oscillating mixer transistor TR2 (BF 195),

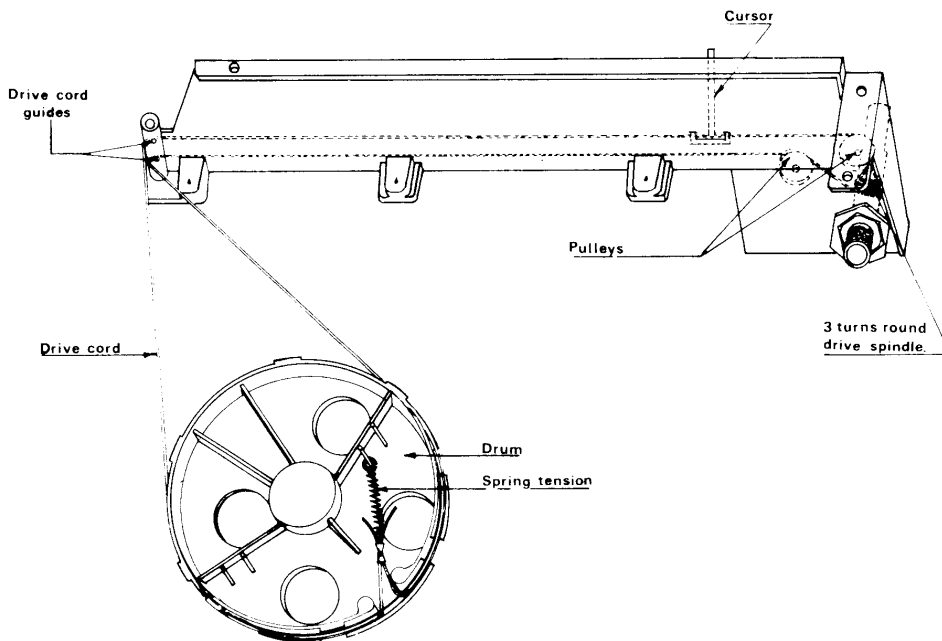
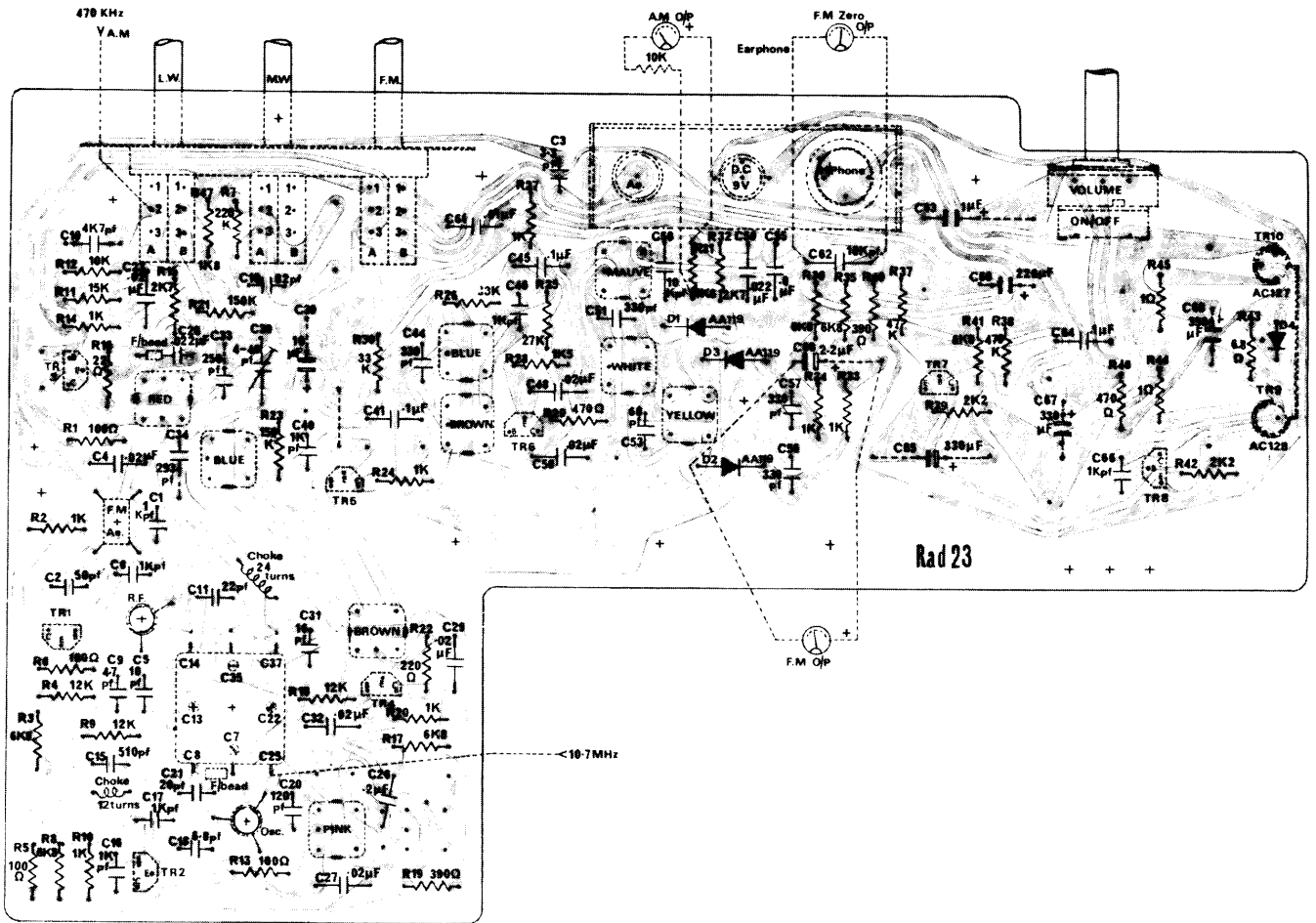
Transistor TR3 (BF 194B) operates as a self-oscillating mixer on A.M.

I.F. amplification at 10.7 MHz is provided by the transistors TR4 (BF 195), TR5 (BF 195C) and TR6 (BF 195D); TR5 and TR6 also provide amplification at 470 KHz for A.M.

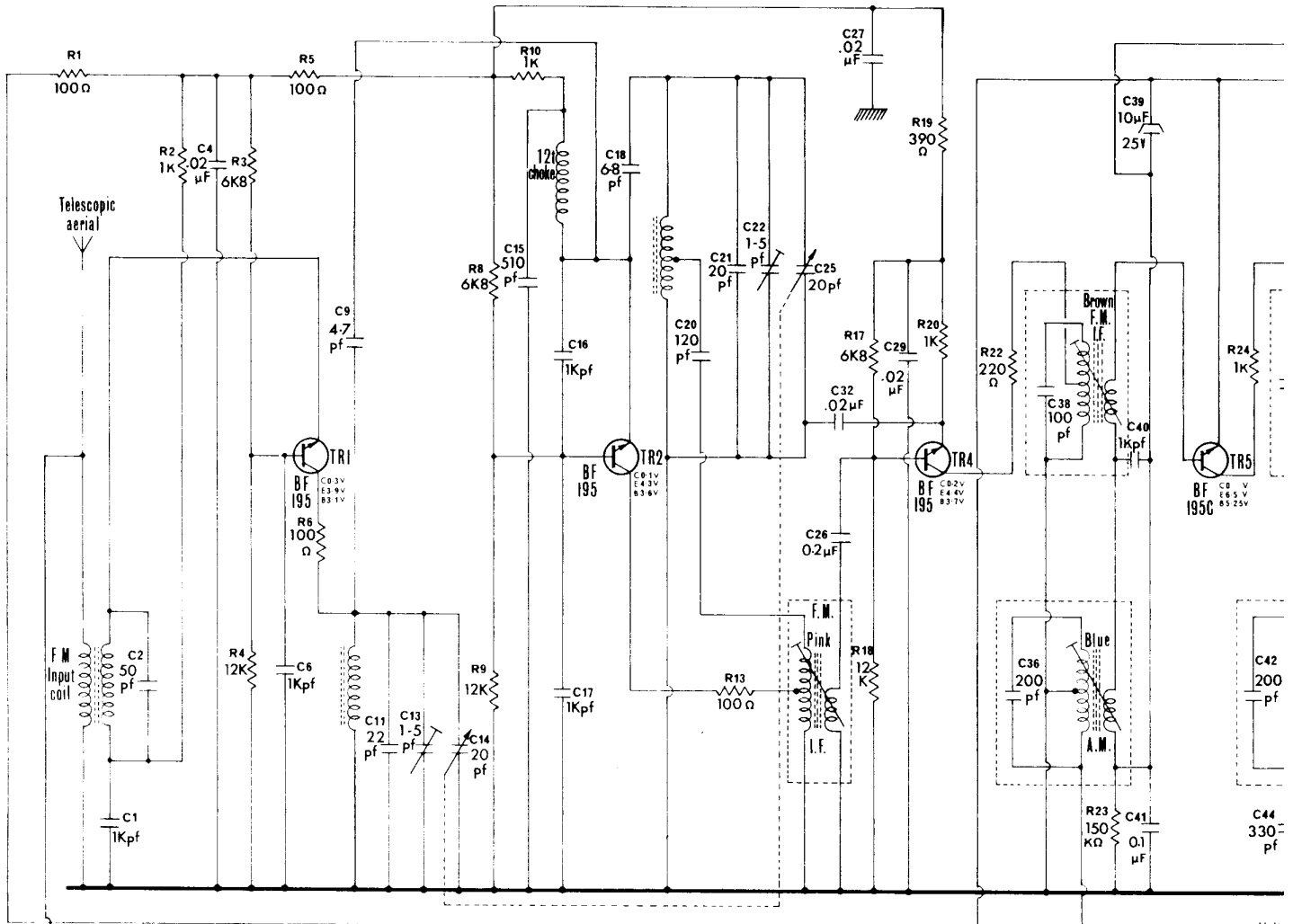
The diodes D1 (AA 119) detects the A.M. signal and provides A.G.C. voltage, diodes D2 (AA119) and D3 (AA119) operate as a ratio detector that demodulates the F.M. signal.

The A.F. amplifier consists of a pre-driver TR7 (BC159), driver TR8 (BC149), complementary output stage TR9 (AC128) and TR10 (AC127) with diode D4 providing temperature stability.

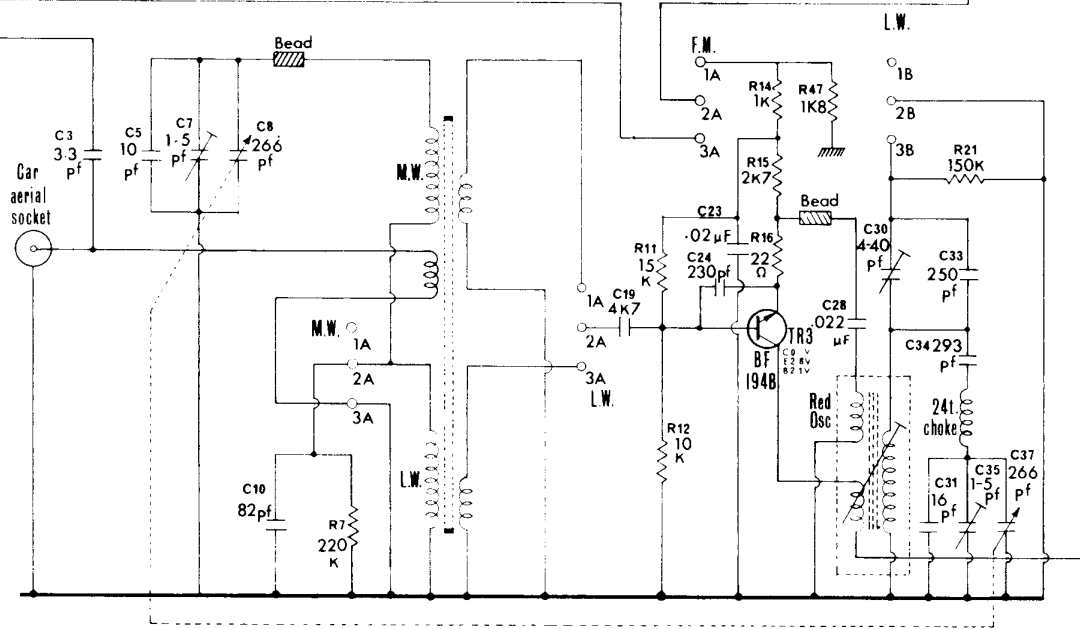
The internal loudspeaker is muted when the earphone socket is used, similarly the internal 9V battery is isolated when an external voltage (ring positive) is applied to the rear socket.



Rad 23



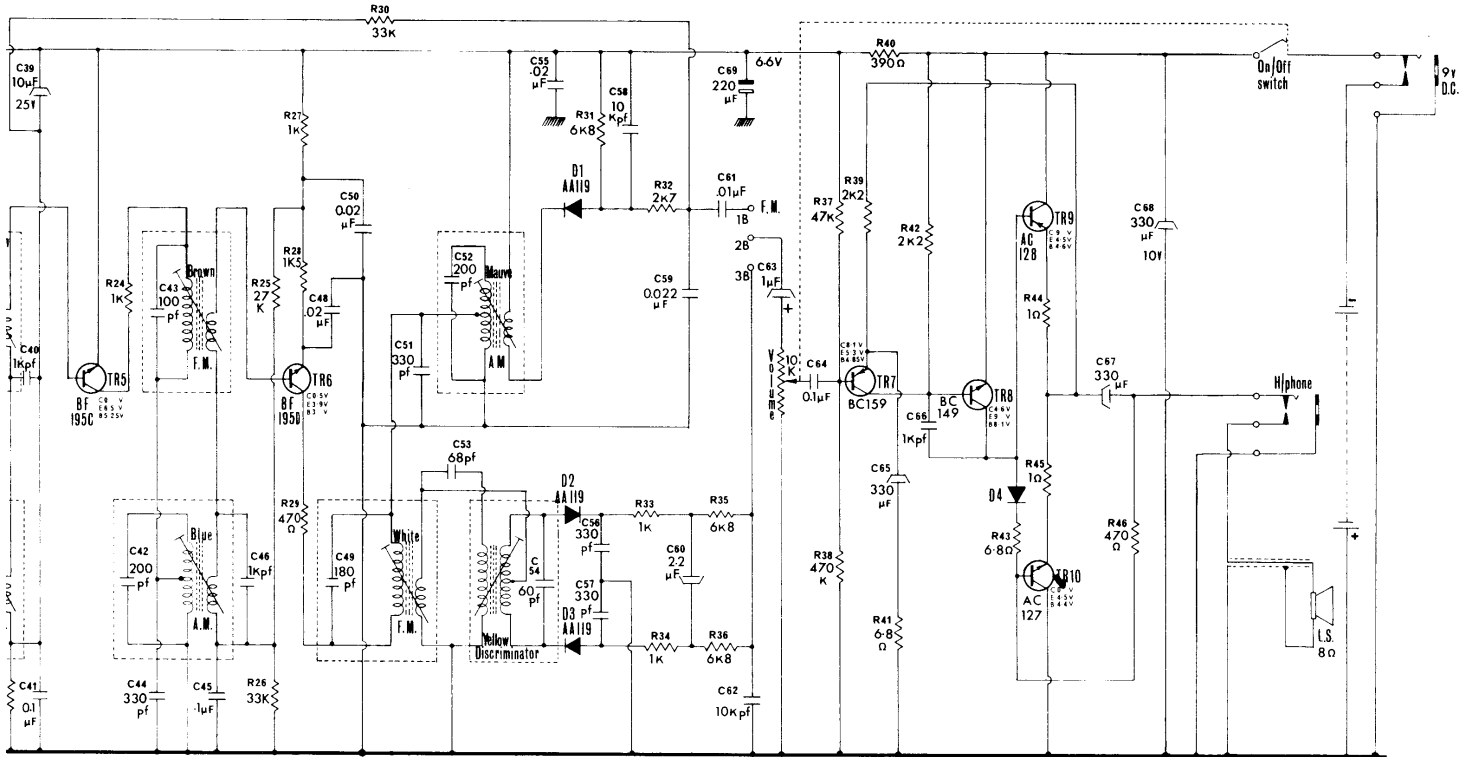
Volt:



L.W.		M.W.		F.M.	
1	2	3	4	5	6
o	o	o	o	o	o
o	o	o	o	o	o
o	o	o	o	o	o

As viewed from copper side of board

Rad 23



Voltage reading with Avo Mk 8 with respect to chassis

A.M. Alignment

With the volume control at maximum, connect a suitable D.C. voltmeter across R31 (include a 10K resistor in negative lead) or a low resistance A.C. voltmeter at the earphone socket and tune to 200 metres. Apply a modulated signal of 470 KHz to pin 2A of the L.W. switch and adjust the two Blue and one Mauve core for maximum output while maintaining the input level well below limiting level.

With the cursor correctly aligned to the tuning scale, tune to 500 metres and apply a modulated signal of 600 KHz via a 1K resistor to the rear aerial socket. Adjust the Red core for an output signal and position the M.W. coil on the ferrite rod for maximum output. Tune to 200 metres and apply a modulated signal of 1.5 MHz, adjust C35 for an output signal and adjust C7 for maximum output. Repeat the oscillator and aerial adjustments for optimum results.

Tune to RADIO 2, adjust C30 for the correct output signal and position the L.W. coil on the ferrite rod for maximum output while orientating the receiver to avoid limiting.

F.M. Alignment

Connect a high resistance voltmeter across C60 (observe polarity) and apply a 10.7 MHz signal across C25. Adjust the

White, two Brown and Pink cores for maximum output while maintaining the input signal well below limiting level. Connect the voltmeter across C62 and adjust the Yellow core for zero output between outputs of opposite polarity.

Connect the voltmeter across C60 and apply 90 MHz to the aerial, tune the receiver to 90 MHz and adjust the OSC and RF cores for maximum output. Tune to 107 MHz and apply 107 MHz to the aerial, adjust C22 and C13 for maximum output.

Repeat the Oscillator and R.F. adjustments for optimum results.

Dismantling Procedure

Remove the two screws retaining the carrying handle and remove the rear cover from the top edge.

Remove the battery and pass the connector back into the receiver compartment. Remove all knobs, unsolder loudspeaker and telescopic aerial. Remove the six screws securing the board and plastic control panel to the cabinet. Ease the board out of the cabinet leaving the controls to come through the escutcheon last.

To reassemble, the reverse of the above procedure should be carried out.