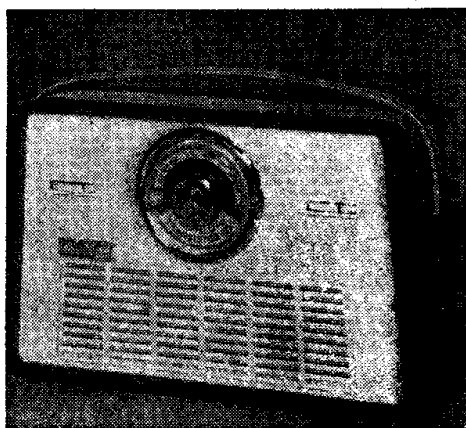


# FIDELITY RADIO



## FLORIDA SIX TRANSISTOR PORTABLE RADIO

### circuit

**S**IGNAL pickup is normally by means of the internal ferrite rod aerial, but a telescopic aerial is also provided for use when it is desired to reduce the directional effect of the ferrite rod. Provision is also made for the connection of a car radio aerial.

The signal is transferred from the aerial to the mixer TR1 via low impedance step-down coupling coils. On long-wave, L2/4 are connected in series, coupled by L5; on medium-wave, coupling is by means of L2/L3, L4 being shorted out and L5 open circuited. The input circuit is tuned by C2 with trimmer C1.

TR1 is a self-oscillating mixer, the oscillator signal being applied in series with the emitter-base input circuit via L7. The oscillator signal is generated by collector-emitter feedback via L6/L7, the exact frequency being determined by L8, C6 and C7 (m.w.), with C8 and C9 added on l.w. Oscillator current is stabilised by R1, R2, R3.

The 470 kc/s i.f. signal is fed to the two-stage i.f. amplifier comprising TR2 and TR3. To eliminate the effects of feedback, neutralisation is provided via C13.

Both i.f. amplifiers are connected in grounded emitter circuits. A.g.c. is applied to the TR2 base by returning the d.c. bias potentiometer R4/R8 to the detector load resistor. TR2 is also biased by the negative volts drop across

the emitter resistor R5. The bias for TR3 is a combination of fixed negative voltage (via R6, R7) and the voltage drop across the emitter resistor R9.

The i.f. output is coupled via T3 to the crystal diode D1, which functions as detector and a.g.c. source, the volume control R10 forming the d.c. load for the diode. C19 is an r.f. bypass. The diode is initially forward biased by the potential divider formed by R4, R8, R10, improving performance at low input signal levels.

The d.c. component appearing across R10 is fed back as a.g.c. bias to TR2. The a.f. voltage is fed via C20, R11, to the base of the driver transistor TR4, the d.c. operating conditions of which are stabilised by R12, R14 and R16.

The output of TR4 is coupled via driver transformer T4 to the Class B push-pull output transistors TR5, TR6, which are driven in the conducting direction by the negative half-cycles of signal. Forward bias is provided by means of R17/R18, so that the output transistors pass a small current in the quiescent state, minimising crossover distortion. The common emitter resistor R19 provides further d.c. stabilisation.

The output is fed to the low impedance speaker via transformer T5, the capacitor C22 preventing spurious oscillations occurring at very high audio frequencies which arise from the Class B operation. Negative feedback is applied via R15 to the driver base.

Power is supplied from a 9V battery, the full voltage being applied to the audio stages. This is decoupled by R13/C18 from the earlier stages, the main rail being -7V. A closed circuit jack is fitted in the output circuit, providing facilities for feeding a tape recorder or extension speaker.

### summary

Transistors	Two OC45, OC81, one OC44, OC81D.
Crystal Diode	One OA70.
Coverage	190-570m. medium-wave. 1,100-2,000m. long-wave.
I.F.	470 kc/s.
Volume Control	5k $\Omega$ with s.p. on-off switch.
Power Output	500mW.
Selectivity	-30dB at 9 kc/s, off tune.
A.G.C.	30dB change in input for 6dB change in audio output.
Battery	9 volts (Ever Ready PP9 or equivalent). Battery consumption (zero signal) 9mA.
Release Date	June, 1961.
Release Price	13½ gns., including tax.

### dismantling

Removal of the back cover (two wood screws) gives limited access to the printed circuit board but permits alignment to be carried out. If it becomes necessary to remove the circuit board for servicing, proceed as follows:

Pull off transparent tuning knob and unclip tuning pointer. Unsolder the red and black speaker leads, the red telescopic aerial lead and the red lead to the car aerial socket. Remove the 6BA nut securing the circuit board bracket to the cabinet, using a box spanner. The board can then be eased out in its slots, having first pushed up the telescopic aerial to prevent it fouling the circuit board.

