

18

# stereo noise filter

The signal-to-noise ratio of an FM broadcast received in stereo is considerably worse than that of the same broadcast received in mono. This is most noticeable on weak transmissions, when switching over from stereo to mono will considerably reduce the noise level. This noise reduction occurs because the left-channel noise is largely in anti-phase to the right-channel noise. Switching to mono sums the two channels and the anti-phase noise signals cancel.

By summing only the high-frequency components of the signal it is possible to eliminate the annoying high-frequency noise without destroying the stereo image since channel separation is still maintained at middle and low frequencies.

Each channel of the circuit consists of a pair of emitter followers in cascade, with highpass filters comprising R3 to R7 and C3 to C5 that allow crosstalk to occur between the two channels above about 8 kHz when switch S1 is closed. When S1 is open the two channels are isolated, but resistors R9 to R11 maintain a DC level on C3 to C5 so that switching clicks do not occur when S1 is closed.

The stereo-mono crossover frequency can be increased by lowering the values of C3 to C5 or decreased by raising them.

