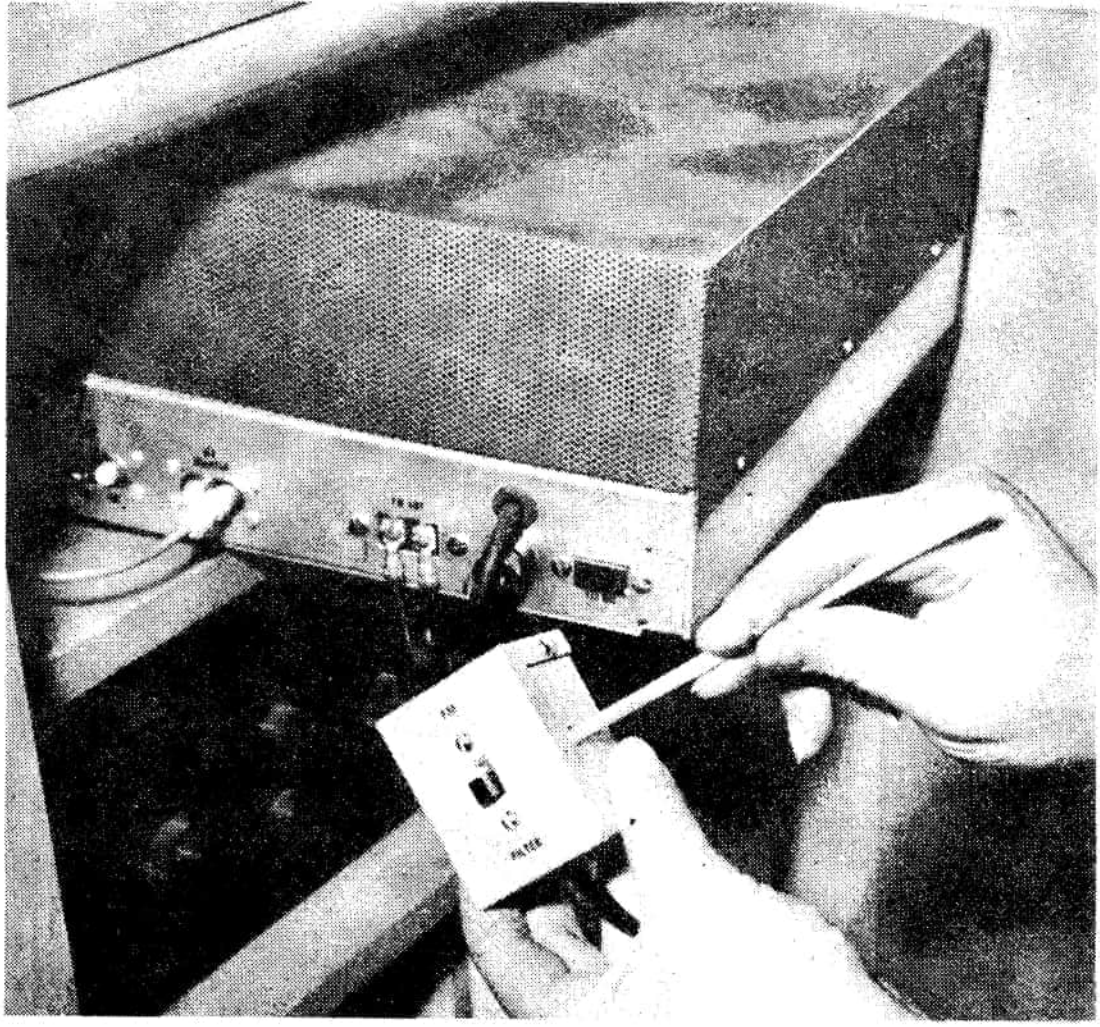


Do strong local stations foul up your FM reception? You can eliminate the problem with EI's low-cost

FM Interference Filter

By F. David Herman

BEFORE FM STEREO, most FM receivers got by with an indoor antenna. But now in most cases, stereo reception requires an outdoor antenna to soup up the signal delivered to the receiver input. Unfortunately, nearby FM stations can ride in on the antenna with a signal strong enough to overload the tuner's front end and cause distortion and cross-modulation. If one strong station appears at several points on the dial, cross modulation is probably your problem.

The best technique for reducing the signal of the offending station is to use a tuned filter such as the one shown. By tuning the filters to the frequency of the offending station, you can reduce the unwanted signal by up to 30 db, while the other FM signals reach the receiver with their normal strength. With S1 closed, the filter is short-circuited out of the line.

Mount S1 in the exact center of the front panel of the small cabinet used. A DPDT switch is specified because the extra terminals permit the components to be mounted directly on the switch.

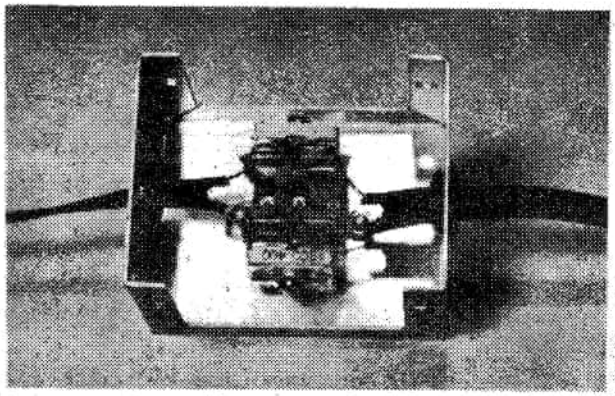
To permit adjustments, drill $\frac{5}{16}$-inch holes in the box cover opposite C1 and C2.

Connect the 300-ohm twinlead as shown. If you use coaxial downlead only one half of the filter is needed. Eliminate L2 and C2 and use a SPDT switch. Connect the downlead's center conductor to one side of the filter. Connect a short length of coax from the other end of the filter to the receiver. Solder the coax shields together inside the box.

Operation. Connect the downlead to either side of the filter and connect as short a length as possible from the other side to the FM receiver. Using an insulated alignment screwdriver (passed through the holes in the cover) close the plates (clockwise) of C1 and C2. Set S1 so the filter is in the circuit and tune in the offending station. Adjust either capacitor *slowly* for *minimum* signal, then adjust the other capacitor for minimum signal. Since there is a slight interaction repeat the procedure several times.

The filter should only be used to eliminate the problem of cross-modulation. While the filter has sufficient selectivity to permit reduction of offending signals close to the desired station, it can't cut down interference caused by adjacent channel stations. If this is attempted, both stations' signals will be reduced.

Any small box will serve to house the few components required by the FM interference filter.



When slide switch S1 is closed, filter circuit is shorted out of the 300-ohm transmission line.

PARTS LIST
L1,L2—.22 microhenry chokes (Miller type 4584)
C1,C2—1.5 mmf-15 mmf trimmer capacitors (value not critical)
S1—DPDT slide switch
Misc.—Minibox, 3"x2"x1½"; 300-ohm twinlead; rubber grommets