



NOISE ON MOBILE CBs

I. There Are 2 Sources Of Noise On Mobile CBs:

1. Vehicle noise (from the engine and various electrical accessories)
2. Atmospheric (background) noise

The more noise there is, the shorter the range. This is because you will need a stronger signal in order to hear it above the noise.

II. First Identify What Kind Of Noise It Is:

1. Listen to the noise with the engine running and with the engine stopped.
2. If there is more noise with the engine running, then the noise is coming from the vehicle.
3. If the noise is the same, then it is atmospheric noise. Atmospheric noise will be less at night, and more during the day.

III. What To Do

1. If the noise is coming from the vehicle, then it can be reduced or eliminated. Refer to the instructions later in this text.
2. If it is atmospheric noise, then there is nothing you can do. You must live with it. To get maximum range, use the longest antenna possible and get the SWR as low as possible.

IV. Atmospheric Noise

Believe it or not, but SUNSPOTS affect the background noise. Sunspots are dark areas on the surface of the sun, a kind of "storm" on the sun. They are dark because they are cooler than the surrounding area.

Sometimes there are a lot of sunspots, and sometimes there are hardly any. The number of sunspots follows an 11 year cycle. The level of sunspot activity actually has an effect on radio communications on Earth. This happens because the sunspot activity has an effect on the ionosphere. The ionosphere is an electrically charged layer at the top of our atmosphere, and it is important for radio communications. Changes to the ionosphere will affect radio communications.

It's a bit complicated, but here's all you need to remember:

1. A low number of sunspots is good for CB communications.
2. A lot of sunspots is bad for CB communications.
3. Sunspot activity follows an 11-year cycle. The last peak occurred in 2002-2003.

We are still in a period of increased sunspot activity, which makes more background noise. Sometimes the noise can be terrible, and the needle on the CB rides really high. At night, when the sun is gone, the noise is significantly less. Expect sunspot activity to gradually taper off through 2007-2008.

Since channel 19 is the most popular channel, it will also be the noisiest. All those people transmitting on channel 19 will add to the background noise. Other channels should be quieter.

V. Eliminating Vehicle Noise

An automotive environment contains numerous sources for electrical noise:

- Alternator noise
- Ignition noise (high voltage to fire the spark plugs)
- Fan motor (blower motor)
- Electric fan on radiator
- Windshield wiper motor
- Electric fuel pump
- On-board computer (all modern cars have one)

Disconnect the antenna from the CB and see if you still hear the noise.

- If the noise stops, then the noise is entering through the antenna system.
- If you still hear the noise, then the noise is entering through the power wires.

VI. Noise Entering Through Antenna System

1. Ground the chassis of the radio by connecting a wire from a ground screw under the dash to a screw on the side of the radio.
2. The antenna cable may be picking up noise. Try re-routing the antenna cable.
3. Try relocating the antenna to a different part of the vehicle (if possible).
4. If you still have problems, please skip to section VIII.

VII. Noise Entering Through Power Leads

1. Ground the chassis of the radio by connecting a wire from a ground screw under the dash to a screw on the side of the radio.
2. Try another source of power. The cleanest source of power is directly from the battery. If you connect directly to the battery, shielded cable is recommended to prevent noise pickup from the ignition system. It is also recommended to use a 3 amp fuse right at the battery if you connect directly to the battery.
3. Try installing a noise filter on the power leads, as close as possible to the radio. Suitable filters can be obtained from local automotive stores or from internet suppliers such as www.crutchfield.com

VIII. If You Still Have Problems

If the above recommendations do not help, then it will be necessary to filter the noise at the source. This is especially true if the noise is entering through the antenna system, since this type of noise cannot be filtered at the radio. Electric motors are particularly troublesome because all electric motors create radio interference. These include the electric fuel pump, windshield wiper motor, heater blower motor, and electric cooling fan on the radiator. Noise from motors that are infrequently used should be tolerable (electric windows, power seats, etc.).

Here are some hints that will help locate the source of the noise:

Alternator Noise

A high-pitched whine that changes with engine speed. It changes with engine speed, but is still a high-pitched whine at idle.

Ignition Noise

A low-pitched rumble that changes with engine speed. It is a slow rumble at idle. If your radio has a Noise Blanker, switch it on. The Noise Blanker is very effective in reducing ignition noise. You may also benefit by giving your engine a tune-up including replacing the spark plugs and ignition cables. Please note, however, there is no guarantee that a tune-up will reduce ignition noise.

Electric Fuel Pump Noise

A high pitched whine that does not change with engine speed. To further identify fuel pump noise, try turning on the ignition but do not start the engine. If you hear a whine for a second or two, that is the fuel pump. It is recommended to check with the auto dealer to see if there is a Technical Service Bulletin that addresses fuel pump noise.

Where to put the filter

To filter the noise at the source, you will need to put a filter into each power line going to the offending device. So if there are 2 wires going to the device, you need 2 filters. Install the filter(s) as close to the source as possible.

Suitable filters can be obtained from local automotive stores or from internet suppliers such as www.crutchfield.com