



## Installing a Mobile CB Radio

Typically the first step in installing a mobile CB is to choose the radio. There are a number of features to consider such as:

- Nightwatch illumination, which illuminates the entire front panel for easy operation at night.
- Single sideband operation, which provides longer range. (The Cobra 148GTL has single sideband)
- Weather channels for receiving National Weather Service broadcasts.
- A built-in SWR meter to check antenna tuning.
- A Noise Blanker to filter engine noise.
- An RF Gain control to adjust receiver sensitivity (useful during high levels of background noise)

Other items to consider when choosing a radio:

- Will the radio fit in your vehicle? (If space is at a premium, consider the Cobra 75WXST "all-in-handset" CB radio)
- The type of speaker in the CB. Most CB radios have a down-firing speaker mounted in the bottom of the case. This works well if the CB is mounted under the dash. If you plan to install your radio in-dash or on top of the dash, then you might consider the Cobra 18WXSTII, which has a front-firing speaker. Or you could also use an external speaker.

After choosing a radio, the next step is to choose an antenna. The most important consideration is length. The longer the antenna, the better range you will get. An 8 foot antenna gets the best range, but not many people are willing to use such a long antenna. Our recommendation is to buy the longest antenna that you are willing to use. For some people that may be 5 feet, while for others it may be only 1 foot. Just remember that short antennas do not get good range.

In addition to length, mounting height is also important. The higher the antenna is mounted, the better the range. The ideal mounting location is therefore the center of the roof. However, not everyone likes that location. Other locations include the trunk lid, side mirrors, and bumper.

Typically the antenna is chosen based on the desired mounting method. The most popular mounts are:

- Roof mount, typically a magnet mount that attaches with a large magnet. This type of antenna is easily removed.
- Trunk mount, which clamps to the edge of the trunk lid. No drilling is required.
- Mirror mount, which clamps to a mirror bracket. Your vehicle must have metal mirror brackets, not plastic.
- Bumper mount, which requires drilling a hole in the bumper.
- Glass mount, which mounts similar to a cell phone antenna. This type of antenna looks nice, but gets poor range.
- You can even get a splitter device that lets you use the AM/FM antenna as a CB antenna. There is no separate CB antenna. But you will get poor range.

One special consideration is for boats and fiberglass RVs. Most CB antennas require a large metal surface to work properly (called a "ground plane"). The body of the vehicle serves this purpose. But boats and fiberglass vehicles lack a proper ground plane. For these applications it is necessary to use a special "no-ground-plane" antenna. You can find these antennas at places that sell boating and RV accessories. Also Radio Shack sells one, their part number is 21-977.

Another consideration is if your CB radio has weather channels. If yes, then make sure your antenna is compatible with weather reception. The easiest way is to look on the package and make sure it says it is compatible. Also note that all fiberglass antennas and center-loaded antennas are compatible with weather channels, even if it does not say so on the package.

Once you have chosen an antenna, mount it following the directions on the package.

The next step is to mount the CB radio. Here are the basic choices:

### **Under dash**

Most CB radios are supplied with a bracket for mounting the radio under the dash. You must drill holes under the dash, then screw the mounting bracket to the dash. Choose a location where the CB radio will be within easy reach. Before drilling, make sure there are no wires or other obstructions where you plan to drill.

### **In-dash**

You will not find any kits for in-dash mounting, so you are pretty much on your own. You will need to use your imagination to come up with a mounting method. Or check the phone book for a local installer that can do it for you.

### **Hump mount**

You can buy one of those hump mounts that sit on the hump between the seats. They are typically for cup holders, etc. But you can usually figure out a way to mount your CB to it. Or you can construct some type of mount from wood. If the hump mount is not secure enough, try using some Velcro to attach it to the carpet.

### **On top of the dash**

If you decide to mount the CB on top of the dash, please make sure it is mounted very securely. You do not want the CB to become a projectile in the event of an accident. Ideally you should drill holes and use the mounting bracket. If you decide to use Velcro, use LOTS of it.

Now that you have the CB and antenna mounted, it is time to connect the wires. Please note that if you run any wiring across the drivers position, be very careful to avoid the gas and brake pedals. Also be careful to avoid any moving parts on the steering column.

Power is usually obtained from a fuse in the fuse box. Fuse taps can be purchased from Radio Shack to make connection easy. It does not matter which side of the fuse you connect to. Alternately, the wires can be connected directly to the battery or to a cigarette lighter plug. Connection directly to the battery may require drilling a hole through the firewall.

### **If your radio has 2 power leads**

Connect the red wire to the fuse for the AM/FM radio. This way your radio will turn off with the ignition. If you want the CB to work even with the ignition off, then connect the red wire to the fuse for the brake lights.

### **If your radio has 3 power leads**

The orange wire is for memory retention and should be connected to a constant +12V source (so that it gets power even with the ignition turned off). The fuse for the brake lights should work nicely. This way the radio will remember what channel it is set to. The red wire should then go to a switched source so that the radio turns off with the ignition. The fuse for the AM/FM radio is a good choice.

### **Now connect the black lead**

To connect the black lead, turn on the ignition and also turn on the CB radio. Now touch the black wire to various screws under the dash. When the radio turns on you have found a ground screw. Attach the black wire to that screw.

### **Using a cigarette lighter plug**

Alternately you can connect the power leads to a cigarette plug and plug it into the cigarette socket. The red wire should go to the center tip of the plug, and the black wire should go to the side contact. If your CB has 3 power leads, then connect the red and orange wires together to the center tip (your radio will not remember the channel with this configuration).

## **IMPORTANT NOTE**

The above procedures assume that your vehicle has a negative-ground electrical system (more than 99% of all vehicles are negative-ground). If your vehicle is positive-ground, then reverse all connections (black lead to fuse, red led to ground screw). Also, make sure the CB radio you choose is compatible with positive-ground vehicles.

## **Connect the antenna wire**

Now connect the antenna wire to the CB radio, avoiding sharp bends. If the cable is too long, DO NOT tightly coil it. Run it back-and-forth under the dash or under the seats. Or you can coil it in at least a 12 inch loop, then squeeze it together in the middle into a bow shape and tape it.

OK! You are now done installing all your new hardware. The last step is to check and adjust the tuning of your antenna. This will maximize the performance of your new system. The antenna is checked and adjusted using an SWR meter. If your CB radio does not have a built-in SWR meter, then you will need to purchase one. Truck stops and Radio Shack sells them. You will also need a short piece of antenna cable to connect the meter, no more than 3 feet long.

To adjust the SWR of your antenna:

1. Park away from trees and buildings
  2. Close doors, hood, trunk
  3. Check the SWR on channels 1 & 40, following the instructions for the meter.
- If the SWR is higher on channel 1, the antenna is too short
  - If the SWR is higher on channel 40, the antenna is too long

Adjust the antenna so that the SWR is about the same on channels 1 & 40 AND is less than 3. Follow the instructions that came with the antenna.

There are different methods for adjusting antennas, depending on the manufacturer. Here are several methods:

1. If the antenna has a whip which is held in place with a set-screw, loosen the set-screw and raise or lower the whip.
2. On center-loaded antennas, adjust the top whip per step #1.
3. If a fiberglass antenna has no visible means of adjustment, this should work:
  - a. Remove the plastic cap from the top of the antenna.
  - b. Slit the PVC cover to expose the top coils of wire.
  - c. To lengthen the antenna, pull the top coil up.
  - d. To shorten the antenna, cut off the top coil.
  - e. Replace the plastic cap.

Once the SWR is approximately the same on channels 1 & 40 and is also less than 3, you are done. Congratulations on a job well done!