

## Extension (In Car) Speaker for CB Radio

A couple years ago our Miata club switched away from the hand held family channel radios to use the Cobra C75-WXST CB Radio. This CB radio is a small compact design that works well in our small Miatas and gives us a lot farther range than the family channel radios. One big benefit to this radio is that the controls and the speaker are in the hand held "Microphone". When using this radio, a person can see and adjust the volume, channels and squelch right on the unit held in your hand. With the speaker also in this hand held unit, it is possible to hold it close to the ear and hear what is said if in a noisy environment. But,.... This can be hard to do when driving a car.

Some of us have found that using an extension speaker with this radio is a big help to hear what is being said, especially if the CB microphone is lying face down on your lap. Radio shack sells several different extension speakers which come with a small 3.5mm plug for the aluminum box of the Cobra Radio. We have been mounting these at the back of the center console (facing forward) using Velcro. In this manner we can hear what is being said a lot better.

Radio Shack sells an extension speaker model # 21-131 in their retail stores which is about 5" square for \$27.99. Two of our club members recently bought these and are very happy with the result. Or as an alternate you can order a less expensive speaker thru the Radio Shack web page. The Cobra® HighGear HG-S100 Extension Speaker for CB Radios which now lists for \$19.99 with free shipping. Or you can search elsewhere for this "Cobra" speaker using the Cobra item number "HG-S100".

Here are links to the radio Shack web page if you want to see them:

Radio Shack #21-131: <http://www.radioshack.com/product/index.jsp?productId=4368008>

Cobra Speaker HG-S100: <http://www.radioshack.com/product/index.jsp?productId=2353920>

I decided to experiment by taking this extension speaker to the next step to have it built in. I put the speaker in the center access cubby door for the gas lid pull and storage compartment of my 2006 Miata. Because I didn't want to mess up the original door in my Miata, I bought a used one from "THE PARTS GROUP Inc." 1567 County Rd. 327, Danville, AL, 35619. His Phone is 1-256-309-0492, web page is [www.partsgroup.com](http://www.partsgroup.com). This is a used Miata Parts Shop I found on "Miata.net" run by Tom Neel. They specialize in turning Miatas into race cars, and strip off all parts inside and out not needed on a race car. I bought a very nice used center cubby door from him.

Next I bought a Cobra HG-S100 as listed above. I took the speaker out of the plastic cabinet and installed it behind the cubby door. Note, do not use a speaker rated for more than 15 watts or the CB may not have enough power to drive it to any volume. An 8 Ohm speaker rated for 5 to 15 watts works best.

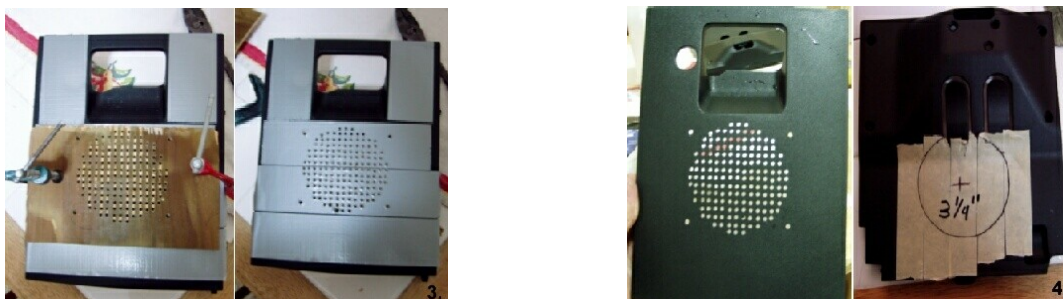
I removed the Cubby Door by opening it to the down position, and just pulled on it. I next took apart the 2 part cubby door and drilled a series of holes in the door face for the sound to come thru. Then I mounted the speaker behind the face of the door, & used the wiring cable from the speaker. I now have the better sound from this larger speaker without having this speaker visible in my car to entice someone to break in and see what all they can get. See the pictures below as I further explain.

See pictures 1 and 2 below. Picture "1" is how the door looks front and back right out of the car. Take a close look at the, back, bottom, center of the door and see a lug that has been melted over by the factory. This is how they fastened the door back to the door front at the factory. Take a hobby knife and trim off the top of the melted center lug. Carefully cut around the center lug and the back will come off. Remove the 4 screws at the top outside edges of the back, and note there are small lugs at the bottom sides that you can't see. Put a flat blade screwdriver along the bottom side edges and pry the back loose.

Look at the left side of picture "2" below as there is also a small lug on the back of the door front. Trim this off as it will interfere with the speaker positioning.



You will see in picture "3" below how I protected the face of the door from scratching using duct tape. Before I drilled the door I made a drilling template out of thin plywood by marking off rows in a  $\frac{1}{4}$ " spacing vertically and horizontally covering an area the size of the speaker cone. I used the speaker out of the Radio Shack, Cobra HG-S100 which has a cone diameter of  $3\frac{1}{4}$ ". So this is the size area where I drilled holes. I used a  $\frac{9}{64}$ " drill bit for the holes. Note I did the horizontal and vertical grid, but if I had it to do over again I would have drilled rings of holes as I feel it would have looked nicer. But when the black speaker is behind the door face, the holes blend in. Picture "4" left side shows the holes drilled in the face. I clamped the drill jig to the front and a piece of wood behind the door to make clean edged holes when drilled.



Next look at the right side of picture "4". I measured the center of the door side to side, and estimated up from the bottom where the center of the speaker would be. I then marked and cut a  $3\frac{1}{4}$ " hole to clear the back of the speaker. Note this cut is undersize to allow me to trim around the edges to have clearance for the speaker when installed. I ended up with about a  $3\frac{1}{2}$ " hole when done. Remove the latch mechanism first making the door back easier to work on.

Looking at the pictures below, picture "5" is the front and back of the finished door. I used flat black painted #6-32 x 1/2" Phillips head bolts to fasten the speaker in place. I used the wiring that came with the Cobra speaker and ran it into the back of the door by drilling a hole, inserting the wire, and tying a knot in the wire so it would not pull out of the door. I then soldered the wires to the speaker for a joint that would not vibrate loose. The wire that comes with the Cobra speaker has a nice right angled plug on the one end that fits perfectly into the aluminum box of the Cobra radio.



Picture "6" is with the door in place in my car. The sound clarity is very good, as it has a lot larger speaker than in the hand mike. Since the Cobra speaker I used is designed for the Cobra radio, it is a good match. My "extension" CB speaker is now out of the way of my elbow, and not in the way of opening the door to pull the gas lid door latch. I was going to try to run the wiring behind the plastic panels that are behind the seat. But if you look hard at picture 6, bottom left corner of the door, you only see about 3" of the black wire. To me this was not worth the work to try to hide it.

If you want to try this, I highly recommend the Radio Shack, Cobra HG-S100 speaker as it was designed for the Cobra CB Radio. It is not a bad idea also to buy the spare door, as then if you sell your car you can put the original door back in. With the drive season soon starting, this is a good time to start preparing for it.

Enjoy!  
Bill Latsha