**13 Tips For Getting The Best Sound Quality In Your Car**

* ***#1 Replace your car's speakers:*** In most cases, the speakers are just about the last thing a manufacturer thinks about when designing and building your car. Factory systems have gotten better over the last few years, but many so-called "premium" systems still use relatively inexpensive amps and speakers that don't deliver top-notch sound.

You can make a big difference in your system's sound quality by installing a nice set of aftermarket **speakers**. You'll hear tighter bass and more overall clarity, and you'll most likely notice details you've never heard before in songs you've known for years.

* ***#2 Select a lower level of compression for your music files***: Yes, you can store more music files in your music player if you use greater compression, and they'll sound okay when you're listening through earbuds. But you lose some high- and low-frequency information when you compress your music, along with some of the details that make your music interesting. And, on a good car audio system, you can really tell that something's missing.
* ***#3 Bypass your music player's built-in digital-to-analog converter***: A digital-to-analog converter, or DAC, has the job of converting digital information — 0's and 1's — into analog music signals. Your music player's built-in DAC usually does a good enough job for casual listening with earbuds, but it doesn't deliver the same level of performance you can get from the more advanced DACs found in many of today's better car stereos. Fortunately, if you can connect your iPod or phone to your aftermarket stereo via a USB cable, you might be able to bypass your device's DAC. It depends on the individual stereo, so be sure to check the stereo's "Hands-on Research" info on the Crutchfield website for confirmation.
* ***#4 Use sound deadening material***: By reducing vibration and road noise, sound deadening material does two things to make your system sound better.

First off, a door panel isn't the best place for a speaker — the thin metal vibrates as your music plays, which affects the accuracy of the sound. When you attach sound deadening material to your door panel, it deadens those vibrations and creates a more stable platform for your speaker, more like the wooden baffle on a home speaker.

Second, have you ever noticed how your system sounds really good at 25 mph, but gets a little harsh when you hit 60? Road noise tends to mask the lower frequencies first, so your system sounds overly bright when you turn it up at highway speeds. Sound deadening lowers interior noise levels in your car, so you don't have to turn your music up as loud when you're driving. You'll hear more musical detail, and your amps won't have to work as hard. And that's all good.

* ***#5 Add an amplifier***: You may be saying "My factory stereo puts out 200 watts, and that's plenty of power." But there's a huge difference between 50 watts peak power per channel produced by your car stereo and 50 watts RMS from an outboard amplifier. A separate amplifier will provide more clean power than any car stereo, and that'll make a night-and-day difference in sound quality. Your system will sound better when turned up to max. An amplifier is essential to getting great sound in your car.
* ***#6* *Add a signal processor or an equalizer*:** The interior of a car presents some serious problems when it comes to sound quality. Glass and plastic surfaces reflect sound like crazy, while carpet, seat covers, and other absorbent materials soak it up. Add poorly-placed speakers to the mix, and you wind up with significant frequency response peaks in most car interiors. These peaks make your music boom in the bass or shrill in the upper frequencies, causing "ear fatigue." Most car receivers give you treble, midrange, and bass controls — useful for global fixes but not for zeroing in on problem areas. You'll need an equalizer to kill these peaks, whether it's built into your receiver or in a processor mounted in your dash or near your amplifiers.

An outboard equalizer gives you multiple points for adjusting frequency response, so you can iron out those peaks in your system. A parametric equalizer allows you to vary the CenterPoint and width of each EQ band, so you can really zero in on a problem area. Sound processors help you eliminate frequency response peaks and increase bass response, and some even include a microphone for analyzing your car's acoustics.

* ***#7 Build a better sub box. Or buy one*:** If you're building a sealed subwoofer box, make sure it's sealed properly. Air leaks can really hurt your sub's performance. If you're using a ported box, make sure you've got the right sub in there. You can destroy a sub that's designed for sealed box use by driving it hard in a ported enclosure. Also, it's important to build a box with the correct interior volume for the sub you've picked out. A mismatch can result in poor performance or a sub fatality.

You can also avoid all of these issues by buying a premade enclosure that'll work with your subwoofer.

* ***#8 Your crossover can really improve the sound of your system*:** Many in-dash receivers now include frequency filters that'll work with your preamp and speaker outputs. If you have a sub, use the high-pass filter to remove the low bass from your car's full-range speakers. You'll get more clean volume out of them, particularly if you're driving them with the receiver's built-in power. Or maybe your sub sounds really strong, but the bass sounds like it's coming from behind you. Experiment with raising or lowering the crossover point on your low-pass filter, and you'll be able to bring the bass up forward with the rest of the music.

Many amplifiers feature subsonic filters that remove super-low bass below the range of human hearing. Go ahead and turn it on — your amp and sub will run cleaner without that subsonic sludge. Also, the compression you use to create your music files can cause a low-frequency sputtering sound in your subs. Your subsonic filter can remove or minimize this noise.

* ***#9 Set your amp gains properly*:** Our Tech Support people field calls every day from customers who can't understand why their new car audio system sounds so bad. The #1 problem? Most people think the gain control on their new amplifier controls the volume level. Naturally, they turn it all the way up, which causes bad things to happen. The gain control actually adjusts the amount of *input signal* coming into the amplifier. When you crank it up too high, you'll hear some seriously nasty distortion.

The general idea is to turn your receiver's volume control roughly 3/4 of the way up to maximum volume, then turn up your amp gain until you hear distortion. Back it off a little, and you're all set. Every amp manufacturer will have specific suggestions, so you'll want to check out your manual for the best way to set the gain on your new amplifier.

* ***#10 Don't max out your tone controls***: A heavy low-frequency boost, in particular, will put a big strain on your factory system. If you want to fatten up your sound, try using a smaller boost in the bass, lower the highs and mids a touch, and then turn up your overall level a little more.

But maybe you've replaced your factory radio with an aftermarket stereo that features a multi-band equalizer. The same rule still holds true — avoid excessive tone boosts or cuts if possible. A bad EQ setting can make a good system sound terrible, while an intelligent tone curve can make a good system sound great.

For a number of very good reasons, it's never a good idea to fool with your EQ on the road. If you can, program a few different EQ presets into your receiver, so you can see what works best in your car without having to adjust settings while you're driving. Or cycle through your receiver's preset curves to see if one of them sounds particularly good at highway speed, then customize that setting in your driveway.

* ***#11 Add a sub and hear what you've been missing***: A good subwoofer will bring the bottom octave of your music back into proper balance, so you'll hear familiar tunes in a whole new light. A subwoofer will take a load off your full-range speakers too, since you'll be playing your tunes with the bass control set at "0" instead of "+5".

Some people develop a negative opinion of subwoofers when they sit next to a thumping, vibrating car at a traffic light. But subs aren't just about the boom — you can adjust any subwoofer to fit your musical tastes and your vehicle. And once you drive with a subwoofer, you can never go back to living without one.

* ***#12 Use a capacitor if you're going to push your subs hard*:** The people who designed your car probably didn't have subwoofers in mind when they built your vehicle. Big bass sucks up a lot of power, and most car electrical systems aren't equipped to deal with it. A capacitor acts as a buffer between your amps and your car's battery. You connect the cap inline on the power cable from your battery, as close to the amp location as possible. It stores up power from your battery, then releases it instantly to satisfy your amp's demand for the power needed to reproduce a big bass hit.

Have you ever noticed a big drop-off in performance after running your subs loud and hard for a minute or two? Or watched your headlights dim in time to the music while you're driving at night? A capacitor cures these problems by taking the brunt of those demand peaks away from your amp, so your amp sees a more consistent supply of power.

* ***#13 Use high-quality cables for your amplifiers:*** Electricity is like running water. You wouldn't run a garden hose from your well to your house, because not enough water would get through to keep up with demand. That's why you don't want to use cheap, undersized power cable to get power to your amplifiers — the amp will be starved for power when you start pushing up the volume control. A good power cable allows current to flow freely so your amp gets the juice it needs during peak demand.

High-quality patch cables promote better signal flow from your receiver to your amps, so you hear a more focused, detailed sound. And good patch cables will also reject noise caused by your car's electrical system.