

## A Simple Way to Tune, Courtesy of cmusic.....

There are several different methods used to tune eqs. This is the one I use. An RTA is not needed if the steps are done correctly. This method uses crossovers and gain settings as the most important factor in tuning. I think the eq should be last in line when tuning. Remember after each step to write down your settings. If the sound gets worse, then you can go back to the previous step's settings and start over.

1. Set all bands flat, as well as the head unit bass and treble.
2. Turn off the subs. Using music with a good bass line, run the highpass crossover up and down until the midbasses can play as low as possible without any distortion or excessive door panel vibrations.
3. Unhook the mids and tweeters, allowing only the midbasses to play. Listen to mono pink noise or a well-recorded song with a centered vocalist. Test CDs such as the IASCA test CD or Autosound 2000 Test CD 102 or 103 will work great. Listen to where the centered sounds are coming from. Then reverse the polarity of one midbass (Reverse the speaker wires coming from the passive crossover and going to the speaker, just flip the positive and negative wires. I usually flip the driver's side speaker.) and re-listen to the test CD. If the sounds are more centered then keep it as is. If the centered sounds are more diffuse and un-locatable, then flip the polarity back to where it was originally.
4. Then unhook the midbasses and play the mids only and follow the same polarity and listening tests as before. Mark your best settings.
5. Do the same procedure for the tweeters.
6. When you have tested for the proper polarity from all three ranges of speakers, hook all of them back up with respect to each set of speaker's best polarity. You can have any combination of polarity, such as all the midbass and tweeters straight and one midrange reversed.
7. Now you should have the correct "acoustic" polarity set within each set of speakers. Next is to set the acoustic polarity between the sets of speakers.
8. Listen to some very familiar music with a good range of sounds. Then flip both midbass' polarity and listen again. Before you only flipped one midbass, now you are doing both at the same time. For example, if the left midbass was reversed and the right was not before, now the left will be not reversed and the right will be. Listen to the music again. If the midbass is more powerful and full then leave the wiring as is. If the midbass sounds weaker and wrong then restore the wiring as before.
9. Perform the same listening tests while flipping the mids and tweeters, and use the wiring configuration that sounds the best.
10. If you have went through all these steps adjusting the polarity of the speakers then the system should sound really good without any eq adjustments. You might want to play with the gain adjustments on the crossover and/or amp to better blend all the speakers together.

11. Now onto the eq! The first eq step is to adjust the tonality. While listening to familiar music, adjust each individual band up and down slowly. When the music sounds better then move to the next band. Adjust the left and right bands equally. (We'll get to the separate left and right adjustments soon.) It really does not matter if the bands are boosted or cut, just that it makes the sound better. Not every band needs to be adjusted. In fact, if you did steps 1 thru 10 correctly you should not have to adjust over half the bands. Having a 1/3 octave eq does not mean you have to adjust every band. It means you have the ability to adjust each band if needed. Watch out for big jumps from band to band, like one band set to +4 and the next band set to -6.

12. Continue through all the bands, take a break, and do the same procedure over again. But this time the adjustments will be smaller as you get the tonality dialed in. This step might take several days, weeks, or longer.

13. In tuning you will find some eq bands will raise, lower, move the sound closer, or farther away if adjusted in certain manners. For example, lowering 5 KHz will generally move the soundstage farther away and raising 2 KHz will make the soundstage rise. Each vehicle and system will have different settings that will be the best. The best way to achieve awesome sound is to constantly adjust.

14. When you are satisfied with the tonality of the system, it is time to start adjusting the left and right channels separately. These adjustments should not affect the tonality, but improve on the imaging and soundstaging. Using the Autosound 2000 Test CD 102 or 103 "My Disk" listen to the individual frequency pink noise tracks. (Test CD103 has the tracks arranged in an easier configuration.) Each frequency band should sound like it is coming from the center of the soundstage. If one band is off to one side, then use each band's left and right eq controls as a balance control. This is very similar to the head unit's balance control, only now you are balancing each frequency band by itself. For example, if 200 Hz seems to be shifted to the left of center, lower the left 200 Hz band and raise the right 200 Hz band one dB at a time until the band is centered. If a frequency is shifted to the right, lower the band's right channel and raise the left channel in small amounts.

15. When you have when through all the bands take a break. Then later go back through each band one by one and make any further needed adjustments until all the frequencies are lined up in the center of the soundstage.