You Want Me To Plug Up What?

This rant is to explain why I recommend blocking the vents (or ports) in your satellite speaker to help them seamlessly blend in with a subwoofer. Any subwoofer that is. Not just ours. Of course, if your satellite speakers are a sealed design, then, well, no need to read any further. Have a Nice Day!

The reason to block the vent(s) on your speaker system is to create a sealed box alignment. This type of alignment creates an acoustic suspension low frequency response which is better suited for blending with any brand of subwoofer. Including our Acoustically Optimized, Patent Pending, MD Series **B**ass **A**ugmentation **S**peaker **S**ystems. (Yes, “subwoofer” is easier to say.)

Your satellite speaker’s vent tuning frequency is more than likely around the 40Hz range, give or take. The sound coming out of the vent below that frequency is in essence out of phase with the sound coming from the woofer itself. This creates the expected 24dB per octave low frequency roll-off of a vented system. The problem is that those frequencies **out of phase** below the tuning frequency, and those frequencies **in phase** above the tuning frequency, create something I like to call **chaos** when trying to dial in a subwoofer. Plugging the vents creates a sealed box 12dB per octave roll-off without introducing those out of phase issues to contend with. Easy Peasy.

Think of it this way, a large full range speaker system is usually a 3 or 4 way design. The low frequency section is typically vented, or will use a passive radiator or some other type of bass assisted alignment. The mid-bass, or midrange section is almost always sealed. Why? Because a sealed mid-bass design blends better with the low frequency section. In other words, the “satellite speaker” section is a sealed, low Q design. Transient response is better. Detail and clarity are better. Phase interactions between the mid-bass and lower bass section is better. It just sounds better because it is designed to function better utilizing the laws of acoustics.

Now, I realize most speaker designers are not too keen about others making changes to their creations. Although some speakers will come with foam plugs to block their vents in those situations where the low frequencies are just a little too ripe in the listening room. If your satellite speakers are not vented, but are instead using a passive radiator type of device, you are encouraged to incorporate some form of inline high pass filtering. See below.

In any event, there is little chance of harming your vented speaker when playing with the vents plugged. Unless you are cranking everything up to beyond 11. Just be sure to install or remove the blocking plugs slowly. If in doubt, you can also incorporate an inline high pass filter to reduce the low frequencies from reaching your speakers in the first place. Harrison Labs (hlabs.com) makes some very nice transparent sounding units. Frequencies around 50Hz or 70Hz seem to work best with most speakers. Very small satellite speakers would benefit from a higher cutoff frequency. This would also increase their power handling and raise their performance abilities.

Why not just use a high pass filter instead of plugging the vents? The answer is: you could. Everything is optional. This doesn't address the out of phase issue and my experience has been that the seamless blending that we are trying to achieve between sub and satellite is smoother when the speakers are sealed and run full range. Your mileage may vary. That's OK. It's only one of the reasons why this hobby is so darn entertaining.

Bottom line (pun Intended), is that when the satellites are left running with the vents open the mid-bass frequencies can sound overly ripe when introducing a subwoofer. In most scenarios you will hear the conflict between the sub and satellite. They are in essence battling each other for dominance in those frequencies as well as dealing with the in phase and out of phase interactions around the satellites tuning frequency.

When the vents are blocked, the mid-bass frequencies take on an improvement in transient response. These frequencies become cleaner and are much tighter sounding. Overall integration becomes seamless. You're not suppose to hear a Subwoofer & Satellite System. You're suppose to hear a Coherent Full Range Speaker System.

Of course this is assuming that your choice of subwoofer can keep up.

The RJS acoustics MD6 and MD2
Bass **A**ugmentation **S**peaker **S**ystems

Happy Listening

John