Equipment Reviews

manufacturer:	ASC
model:	TubeTraps
category:	EQ & Room Tuning
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Introduction

Acoustic Sciences Corporation, more commonly known as ASC, has been manufacturing acoustic room treatment devices for the better part of 15 years. Founded in 1985, ASC has become one of the premier manufacturers of acoustic room treatments for the home and recording studios alike, with their core products centered around a patented tube-like design.

ASC's acoustical room treatments are designed to absorb lower frequencies and diffuse and disperse higher frequency information. The company provides a variety of acoustic room treatments designed to improve nearly every sonic aspect of your A/V experience.

ASC's TubeTraps come in a variety of sizes and shapes. They are available in full rounds, half rounds, and quarter rounds for corner applications. All configurations typically stand four feet in height and come in a variety of diameters, depending on the requirements of the room and the frequencies that are being treated. Custom lengths are available if necessary. ASC offers a variety of standard and custom fabric coverings to best match your home or studio décor. Prices range from about $200 per piece, to as much as $700 for their largest treatments.

Arriving at a good friend's home to see and hear his newly-completed custom Victorian theater, I looked about in amazement. The basement theater has been designed to replicate an 1850s Victorian theater adorned with every period detail imaginable. My friend explained to me that he'd start off the demo session with some music. Just before he pushed play on his CD source, he gave me a long look of agitated uncertainty and said, "I'm not sure, but something seems to be not quite right." Being a good friend and not wanting to sound snobby or overly critical, I replied, "Don't worry, I'm sure it sounds fantastic."

No sooner than he pushed play, I heard what had given him such concern. His room was clearly destroying the potential of his sound system. His stage was scattered and images were for the most part non-existent. The bass was fat and resonant and lacked any real definition. The room was interacting with the sound system so poorly that initially I wasn't sure if there was a component connected out of phase. After a quick examination, we determined the obvious – the room was indeed the problem.

I understood my friend's frustration well. I had great empathy with his plight, as I was plagued with a similar condition many years back as I converted my garage into a dedicated audio/video room. As I constructed the space, I looked forward to the sonic benefits of a dedicated room void of all the anomalies caused by household furnishings, appliances, asymmetry, and large reflective window surfaces. Once my room was complete and my gear was properly positioned, I embarked upon what I fully expected to be the best-sounding system I had ever heard. "Why not?" I had the same great gear that sounded very good in my living room and had just supplied it with a perfect room – right? That couldn't have been further from the truth. My soundstage was poor – actually, for the most part, it was nonexistent. The bass was boomy and came from everywhere. "How could this have happened?"

I spent the next week hanging sleeping bags, filling bookcases and placing every absorptive item I owned in the room. Although I began to achieve a stage and some limited bass control, I also managed to kill the room and all of the natural ambience in my recordings. I reached a point of great frustration. I had become obsessed with the poor quality of my music reproduction. Reluctantly, I made my way to my local retailers, hoping that perhaps they had some magical secret that would fix my acoustical problems. The sales guy looked upon me like I was some unhappy audiophile geek, always one tweak from happiness. I asked him about room treatments and he shrugged his shoulders and walked into the back room. Moments later, he emerged with four half round TubeTraps from ASC. He looked at me and said, "I don't think that these will fix your problems, but you are welcome to try 'em."

I brought the TubeTraps home and positioned them at the first reflection points of both my front wall (the wall behind the speaker system) and side walls just adjacent to my loudspeakers. The "first reflection

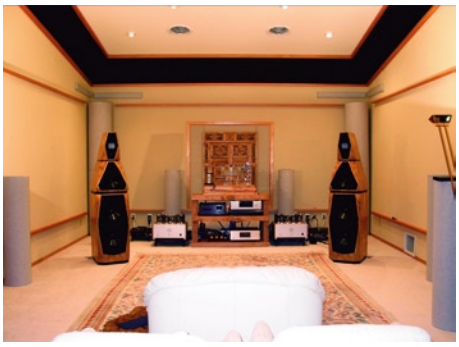
point" can be easily calculated by placing a mirror on the wall and moving it until you can see the reflection of the speaker from your listening position.

I loaded one of my favorite CDs into the player and sat back to evaluate the sound. I am told that I was discovered about four hours later stuck to my chair with my disc case open and an ear-to-ear grin on my face. TubeTraps had fixed many of my acoustic problems. My stage was exceptionally rich with detail, well defined, and laid back beautifully. Was it possible that these little tube-like things had fixed my problems this simply? Mere days earlier, I had been consumed with frustration and held little hope of realizing my dream of having a perfect dedicated room of my own.

This started my interest – which soon developed into fascination – in room acoustics and treatment, a passion that I have carried ever since. Initially, I borrowed products from most of the major manufacturers. I tried a variety of products from RPG, Argent, Room Tunes and more. I learned about the technology behind each of these products and where their individual strengths lie. Products are available in a variety of sizes and shapes designed to correct a variety of conditions. Before you treat your room, you must understand a little about what is causing your problems, so that you can better understand what you need to do remedy specific issues.

What makes ASC products unique is their ability to both absorb lower frequencies and to diffuse midrange and high frequencies. There is no other product available for your home that can provide this combination more effectively.

There are several conditions that contribute to bad sound. Among these are standing waves, a variety of echo conditions, early reflections, comb filtering and more. Short of lining your walls and ceilings



with specially designed acoustical treatment panels, there is only truly one way to combat these issues, which is to combine absorption with diffusion. ASC has patented cylindrical devices that accomplish this. Simply stated, a device can only effectively absorb frequencies of a wavelength no greater than the depth of the device. In the case of the TubeTraps, the depth is the diameter of the tube. Tubes are extremely effective, as many of the other available products are panel-based and don't provide the depth to properly absorb low frequencies effectively. This is why the panel designs focus primarily on diffusion. Diffusion will control your early reflections, which can correct many soundstaging issues, yet will do little to control standing waves that simply cancel reproduced information, making your system sound less resolute than it should.

Music and Movies

To demonstrate the effects of the ASC TubeTraps in my room, I started with "About a Girl," the opening cut from Nirvana's 1994 release Unplugged in New York (UNI/DGC Records). When removing the 11-inch tubes from the first reflections on the front and side walls, I found the vocal images became clouded and undistinguishable in location. When I reinstalled the TubeTraps, the images again became solid and contained a much more realistic tone. Kurt Cobain's voice had considerably greater timbre and depth with the TubeTraps installed.

The TubeTraps treatments are designed to control high-pressure waves, so I thought, "Let's give them some waves." On Van Halen's "Panama" on their album 1984 (Warner Bros.), I found the bass and drum tracks to be notably different. The drums, without the use of corner TubeTraps, were fat and slow. Bass performance with tube traps had a focused position rather than just filling the room. As mentioned earlier, the 16-inch round corner treatments are large and perhaps not for every room, but the benefits were unmistakably engaging.

In the original Jurassic Park (Universal - DTS), the scene where T-Rex makes his escape and quickly commences to terrorize the kids in the car, the rumble of the dinosaur's growl was clearly improved. The low frequency effects were much better controlled and had improved definition, which made the scene more chillingly realistic. I use dual subwoofers that can easily overload a room, but here I found the information to be very solid. Without treatments, the bass could become fatiguing and somewhat overwhelming, lacking any distinguishable definition or source.

How do I know if room treatments will provide sonic improvements for my listening environment?

The end result of a room treatment is a room that is void of any echoing effects. It is live and ambient and displays very controlled bass, yet has no inherent deadness. If you clap your hands in this room, it will sound similar to what you'd hear if you clapped your hands outdoors, in that the quality of the clapping is live and has a snap or quickness, with no delayed resonance or decay. This is easily achieved in an outdoor setting, as there are no structures for the sound to bounce off of and return to you. The perfect room would be eminently quiet, because for each frequency of noise, there is a cancellation of music in the equal frequencies and the equal sound pressure level, or SPL. To determine the condition of your room, walk around the space and clap your hands. Do you hear resonant echo? Do you hear slap echo, a condition caused by parallel walls that are void of structure that would otherwise break up, absorb and often diffuse such bouncing waves? Slap echo can most often be identified by a quick chirp that follows the handclap. Do you have TVs and other items between your speakers that can interrupt and affect your soundstage? Are your speakers close to one wall and either not close to another, or there is another room opening to the side of the second speaker? These are all typical conditions we encounter in what I describe as normal listening environments, which describes 95 percent of the settings for home A/V systems. All of these conditions significantly degrade your sound system's performance.

Okay, I have determined that I have some of these conditions – how much of this stuff that you're talking about do I need, how much is this going to cost me, and what should I expect to hear?

The engineers at ASC are very good about assisting you in determining which products will best control the conditions in your room. You can also check with your retailer to see whether they can help provide you with the technical information you will need to properly treat your room.

I will share a couple of scenarios, and provide you with my recommendations for the best and most effective solutions. Please understand that these are only generic recommendations intended to give you a baseline for understanding which products you might need, what treating your room acoustically is going to cost you, and what results you should reasonably expect to achieve.

The first condition that needs to be addressed is controlling echo. There has been a trend of late to create large rooms in our homes, sometimes combining a two living rooms into one larger room, often called a "great-room." This can be particularly troublesome because these rooms are very big with very large walls, often with vaulted ceilings. If this is your situation, you will definitely want to consult with the engineers at ASC. This condition can be extremely hard to remedy sonically. Echo is the most degrading condition in any room. Before we test and treat this condition, let's look at a package that will benefit absolutely every room. Once we understand this basic treatment package, we can assess the need for additional acoustical treatments. As a minimum, I recommend four 11-inch round TubeTraps, one at each of the first reflections on the side and front walls. These will control most troublesome early reflections, providing large improvement to your soundstage. You will be absolutely amazed at the noticeable lift in sound quality that this will provide in nearly all rooms. The price of the 11-inch diameter, four-foot-high rounds is $328 each. You could consider half-round TubeTraps at $248 if space is a concern, but you would sacrifice performance. The half rounds tend to look a little more planned and sleek in your room, but the performance of the full rounds is superior and will provide you with better control. Once you have treated the first reflections, it is time to ascertain whether you have slap echo. As you walk around your room and clap, you will likely hear echo in select areas. If that's the case, you will want to consider wall panels. These are designed to diffuse sound waves and work very well for this application. Wall panels measure eight inches wide by four feet tall and cost $398 for a package of eight. Wall panels can also be purchased in smaller or greater quantities if you need additional treatment. To make the most effective use of the panels, I suggest that you position the panels on the walls in the specific areas you determined you were experiencing the slap echo. You'll want to mount the panels so that they are spaced one panel width apart on each of the side walls, staggered by one panel width on the opposite walls. If you were to shine a light from a panel on one side wall to the other side, you would hit a space between the panels in the parallel pattern on the other wall. You might call this an offset pattern. This will control slap echo very well and allow for little to no cancellation in your reproduction.

There are relatively few rooms that don't suffer from large standing waves. This is a condition that will cloud your bass, making it soft and robbing it of dramatic impact. Treating this condition is not cheap and takes up considerable room. To treat this, I would suggest 16-inch diameter, four-foot high rounds in each corner of your room. As a minimum, you can put one in each of the corners behind your speakers, but treating each of the four corners is preferred. The 16-inch rounds cost $498 each per treatment. As mentioned before, these are generic conditions, but these examples are intended to provide you with an understanding of what treating your room will cost.

With the above treatment set, you could expect to experience large improvements in every area of performance. You will likely experience a considerably more palpable midrange and greatly improved vocal timbre. Instruments will have greater depth and greater three-dimensional textures. I would expect your bass performance to improve dramatically in definition and focus. Ideally, individual room conditions will be analyzed separately and optimized for your specific environment. The above recommendation is a typical building block to an ideally-treated room.

Conclusion

A great-sounding, high-performing A/V system is the result of more than just great gear. It's a combination of good components, accurate setup and, foremost, a room that performs to the caliber of your reproduction system. Poor room conditions plague just about every A/V system. It is likely responsible for more loss of sonic performance than any other aspect of your system. Too often, we seek to gain improvement through the purchase of additional gear, or upgrading to more expensive gear, and don't realize that we are really overlooking the real problem. You room is the catalyst of your sound system. The performance of your gear is no better than your room. If your room is performing poorly, you are simply wasting your money on expensive gear. Room treatments are seemingly expensive and many may decide that they don't want this stuff in their living rooms, which is very understandable, but for those who can tolerate the intrusion, the benefits are immense.

Many retailers will loan you ASC products to try – speak to yours and see if he or she will cooperate. If there are no convenient retailers, then I would strongly recommend the purchase of a minimum of four 11-inch tubes. I stand behind this recommendation as much or more than any recommendation that I have ever made. For myself, I couldn't live without my ASC TubeTraps, as they provide essential improvement to my room and provide the correct foundation for evaluating A/V gear. I often invite manufacturers to my home and they are consistently staggered by the performance of their products in my room. For most home applications, TubeTraps are the difference between a good sound system and a great one.