

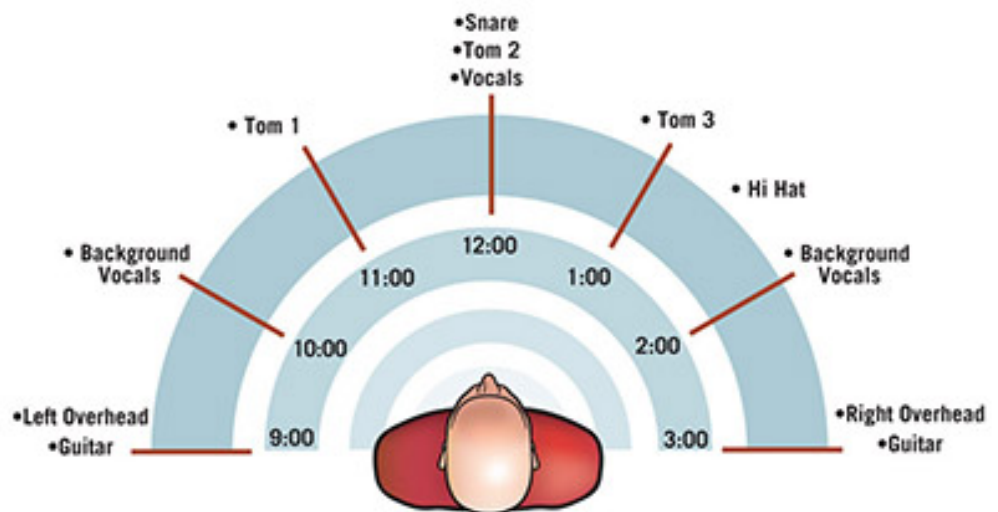
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## Mixing in Stereo: Adding Width and Depth to Your Recordings



When it comes to discussing the fine art of mixing music, I tend to approach the subject with some trepidation. After all, compared to many of the topics I've written about, this one is rife with subjectivity — one person's idea of a great sounding mix may be another's sonic nightmare. And what works for one genre of music will be decidedly wrong for another.

But all those variables aside, there are at least a few general theories, tips, and tricks that apply to most mix projects. So while the idea here is not to give a step-by-step tutorial on two-track mixing, hopefully we can cover at least a few concepts that are useful for everyone.

### The Concept

At its most basic, mixing in stereo means mixing for the human brain and physiology. “True” stereo mixing involves creating a sonic picture that replicates what our two ears hear — and our brains decode — in the real world. For example, the brain localizes a sound by measuring the time and tonal differences between the sound arriving at one ear and the other. In a perfect world, a true stereo mix would create a sound that’s as close as possible to an organic, live performance.

But in the real world, much of the process of creating a stereo mix is far from organic or natural. Part of this is due to practical considerations. In a live performance, the acoustics of the venue itself play a prominent role in blending the sound sources and masking the localization of any particular instrument. In the studio, tracks tend to be recorded separately, in a relatively dry setting, enabling us to control their perceived ambience with the aid of technology.

In actual practice, modern stereo mixing has less to do with replicating real world conditions than with creating a good sounding balance between the various musical elements in a recording. It’s probably safe to say that most modern recordings bear only a passing resemblance to the sound of a band playing live in front of the listener.

## **What Makes a Good Mix?**

As stated earlier, the definition of a good sounding mix is largely in the ears of the listener. But most engineers will agree that a good mix should contain a few common characteristics:

**Clarity:** Each sound in the mix should be clean and clear — no muddiness or blurring of the sounds or the stereo image, no excess noise or other anomalies.

**Separation:** Each instrument and part should be easily discernable. Sure, there’s nothing wrong with a “wall of sound” if that’s what you’re after, but even within those big, lush guitars, a great mix will be crisp and well-defined enough for the listener to pick out individual sounds.

**Balance:** The mix should offer a good balance of frequencies. A mix that’s too bottom heavy or too shrill will be unpleasant and exhausting to listen to. The mix should also be balanced between left and right channels.

**Space:** As with balance, this applies on many levels. The music itself should have space — places between the notes where things breathe and dynamics develop. Of course, this will vary depending on the genre of music. There should also be an element of natural ambience to each instrument, and the ambience for these different instruments should blend well with each other.

Needless to say, these characteristics alone do not make for a perfect mix, but a mix that lacks any one of them will very likely end up being at least a little bit problematic.

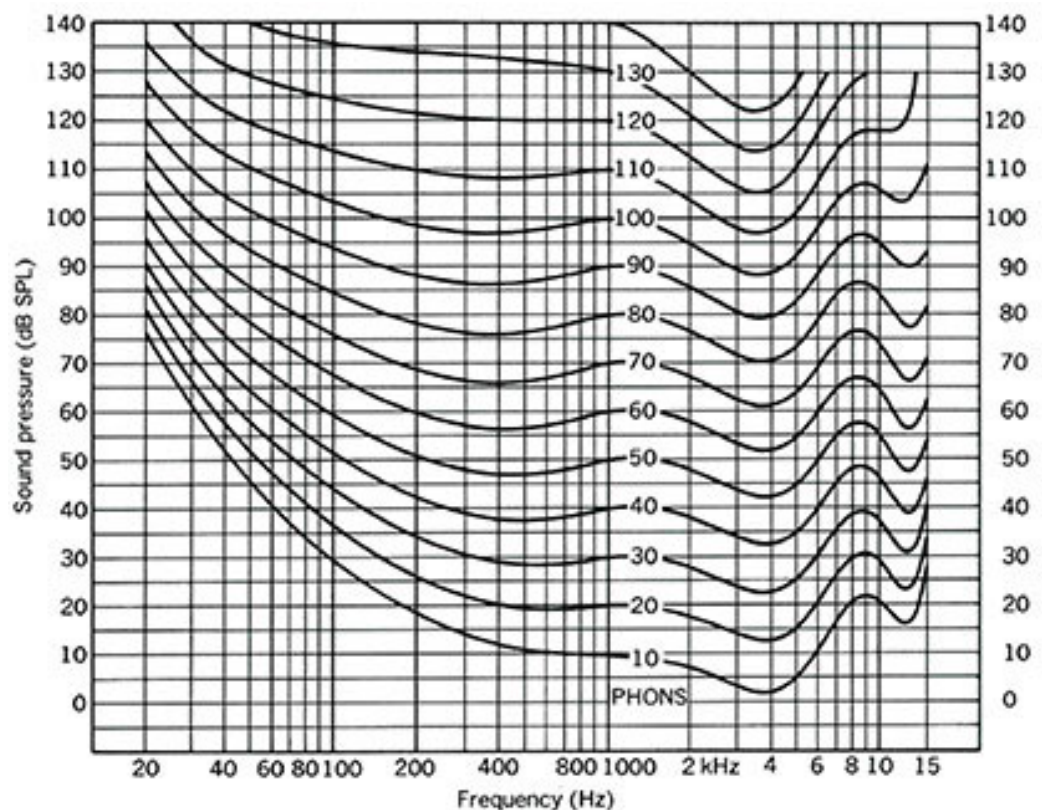
## It Starts at the Source

It should go without saying that achieving the best mix starts with a good recording. Strive to achieve the cleanest tracks you can, with no excess noise or distortion.

Most importantly, don't forget to listen closely while you're recording. Be on the lookout not just for mistakes, but stray noises and other anomalies. It's far more difficult to go back and re-record a part, or fix it in the mix, than it is to get it right the first time.

It's also a good idea to think in terms of the song and the arrangement from the very beginning. Only add what's needed for the arrangement, rather than cluttering it with overdubs. And try to keep the number of takes of any given part to a minimum; few things are more mentally exhausting than listening through dozens of takes of a vocal or solo to compile a single track.

In fact, planning for your mix while you're tracking is probably the number one most overlooked issue in recording. Particularly with the near limitless tracks offered by today's DAW programs, it's all too easy to just record another take and adopt a "fix it in the mix" attitude. The hours you will add to your mixdown time will absolutely come back to bite you in the end.



*Mixing at too high a volume will affect your sound perception, as demonstrated by these loudness contours.*

## Preparing Yourself

Just as with any artistic endeavour, everyone has their own set of tricks and techniques, and what works for me might not do the trick for you. But there are a few points that are pretty much universal. One is to always try and mix with fresh ears. Starting a mix after you've been tracking for eight hours will pretty much assure you'll be starting again the next day. Second, try and keep the volume at lower levels — too much volume will inevitably begin to affect your perception (for more info, do a web search on "Fletcher-Munson Curve").

Also, when you're mixing remember to change your perspective often. Your mix may sound great while you're sitting in the sweet spot between the speakers, but the true test will be listening to it from out in the hall, or through a boom box or car stereo.

We've all heard people compare a mix in visual terms, and there are even courses of study that emphasize the concept, creating different colored "orbs" to illustrate the placement of parts in a mix. It's an interesting idea, though I personally prefer to leave visuals out of the equation altogether. In fact, my preferred method for mixing involves closing my eyes to listen. I find that removing visual distractions tends to sharpen my focus on what I'm hearing.

## **The Joys of Mono**

It's important to periodically check your mix in mono while building your mix. The main idea behind this is to avoid phase issues with stereo sources like guitars and keyboards.

But checking the mix in mono makes sense for other reasons too. Listening in mono tends to "flatten out" the mix, giving you a different perspective on how much natural separation there is between the tracks. Essentially, if it sounds clean and well-defined in mono, it will sound good in stereo too, while the inverse is not necessarily true.

That said, let's draw a distinction between checking your stereo mix in mono versus the practice of building the mix in mono and then spreading it out. While a number of engineers I've talked with swear by this technique, my own (admittedly subjective) view is that mixing in stereo requires an entirely different approach, much the same way mixing in a surround format differs from stereo.

## **Drums and Bass — Starting with the Foundation**

For the most part, low frequency sounds tend to work best when panned dead center. Because of their lack of directionality, and because they contain most of the energy in a typical mix, it's best to keep these sounds in the middle of your mix.



Typically, in a rock or pop mix, the drums and bass are the first element most people address. Though there are no hard and fast rules, most mixes begin by setting up the stereo



*Create a natural space in the stereo spread for each drum piece.*

image of the drums from an audience perspective. That means that, with a right-handed drummer, the kick and snare will be in the center, the hi-hat will be panned slightly right of that, and the overheads will be panned hard left and right.

Depending on how many toms and other toys the drummer has in his or her kit, it's usually best to create a natural placement for each of them within the stereo spread. For example, if the drummer has three toms, I usually pan the middle one dead center and the other two at around 9 to 10 o'clock and 2 to 3 o'clock, depending on how wide a spread I'm looking for.

Of course, all this assumes you're miking the drum kit in what has become the standard recording technique, with individual mics on each drum, a pair of overheads, and perhaps even some distant mics to pick up room ambience. For the most part, you will find that the more you mix in the overheads and ambient room mics, the less actual "localized" definition your drums will have.

That said, one of the most interesting sessions I ever worked on involved only four mics on the kit — a stereo pair set up a few feet away from the kit, and an ambient pair about 15 feet away in the corners of the room. The producer was a well known old-school studio veteran, and we spent literally hours moving the mics by a half-inch here, and a quarter-turn there.

The resulting drum mix, though it certainly had some natural stereo ambience, was closer to mono in nature. And while you might associate that with a lack of depth, the result was anything but. In fact, less panning and less ambience will result in a bigger, more defined and in your face drum sound.

## **Stereo Guitars — A Few Tips**

Mixing guitars in stereo is a great way to add depth to a mix, particularly in a very busy mix. Spreading out the guitar(s) will open up space for the bass and other center-panned parts. Try dropping out some lower midrange to remove muddiness in the middle — especially on a dreadnaught or other large-body acoustic. Adding high end can also work, but will often accentuate finger noise.

Try recording acoustic guitar with a pair of directional mics with one pointing at the body just below the sound hole and the other at the top of the neck. Panning them at about 9 o'clock and 3 o'clock should give you a nice wide stereo image. Alternatively, try using a Mid-Side micing technique.



*A suggested stereo recording setup for guitar.*

Doubling guitars is another nice way to add depth. Pan the original part to one side, add a delay (between 5 and 15 ms is a good place to start), and pan the delay return to the opposite side. A slightly different reverb and/or EQ setting will thicken them out even more.

Double-tracking the guitars manually (that is, actually recording the same part twice) can deliver even more interesting results. Try recording the same part using two different guitars. If that's not an option, try recording the same part with a different tuning or a capo. For example, if the song is in G, record the second pass with a capo on the 5th fret, playing in D. Or tune the guitar down a whole step and play the song in A.

Another way to double a guitar part that's been tracked in mono is to send it back through a guitar amp and mic the amp from two different spots in the room with different mics. Alternatively, run the track through two different amps with different settings.

### Blending Lead and Background Vocals

While lead vocals are typically front and center, you can try all sorts of different ideas with backing vocals. Spreading them across the stereo field is great for widening your track, but try not to get too wide – 9 o'clock and 3 o'clock is enough for most mixes. With most backing vocals, effects can be your friend; a bit of hall and some chorus can do wonders for blending parts with each other and within the mix.

Panning the backing vocals left and right and leaving the lead vocal in the center is a commonly used technique and works well in most cases. But for something just a bit different, try slipping the lead vocal just a hair to one side and the backing vocals to the other side.

### A Few More Things to Try

Don't be afraid to be asymmetrical with your mix by placing elements to one side or the other. Particularly with string patches and other heavily chorused pads, panning them very widely can cause them to dominate the mix even when they're not very loud. Instead of panning a part at, for example, 9 o'clock and 3 o'clock, try a more narrow panning like 1 o'clock and 3 o'clock. Of course, you'll probably want to introduce some other element on the other side to balance things out, but it's a great way to keep things from getting too swimmy and lacking in focus.

In fact, it's a good idea to make sure at least some elements of your mix stay in mono. While those lush, chorused pads and reverbs may sound great on their own, piling up track after track of them is a great way to turn your mix into an underwater mess. Always keep at least some parts in mono to give them a sense of localization. Using a mono reverb will give them an ambience without destroying their directionality.

One very effective trick is to use delayed reverb instead of just panning for a

more natural sounding ambience. Pan the original track to one side at about 9 o'clock or 10 o'clock, Add a short delay (less than 10 ms) and pan that to the opposite side; then add just a touch of reverb to the delayed signal. The results will be a bit more natural-sounding than just using the pan control. Here's why: our ears and brain perceive a sound source using a number of auditory clues, including differences in timing, level, and even tonality between each ear. A pan pot only addresses the difference in level. Delaying the sound on one side and adding a bit of reflection creates a more natural ambience. Try shaving off just a touch of high end on the delayed sound as well to replicate the effect your head creates as it masks some of the sound.

Another trick for widening a track is to pan it to one side and add a stereo reverb; the result will be a natural ambience with a bit of extra "splash" to one side. Or try adding a very gentle mono chorus effect to only one side of a stereo track. The movement between the speakers can add an interesting depth and spaciousness that's particularly nice on strings and other pads.

## Of Course, There's More

Even though I've tried to stick with very general concepts, mixing is a subject that can easily fill many hundreds of pages. But let me leave you with two important points.

First — it's always about the song. No matter how many cool technological tricks you introduce into a mix, if it's not right for the song, it's not going to work. Listen to the song, and only give it what it needs — nothing more.

And that, once again, brings me to my second point, a tip I offer in almost every column — your ears are your most important tool. Learning to listen is truly the most important lesson in music, whether playing, recording, mixing, or mastering. Don't be afraid to get in there and try new things. And as always, let your ears be your guide.



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