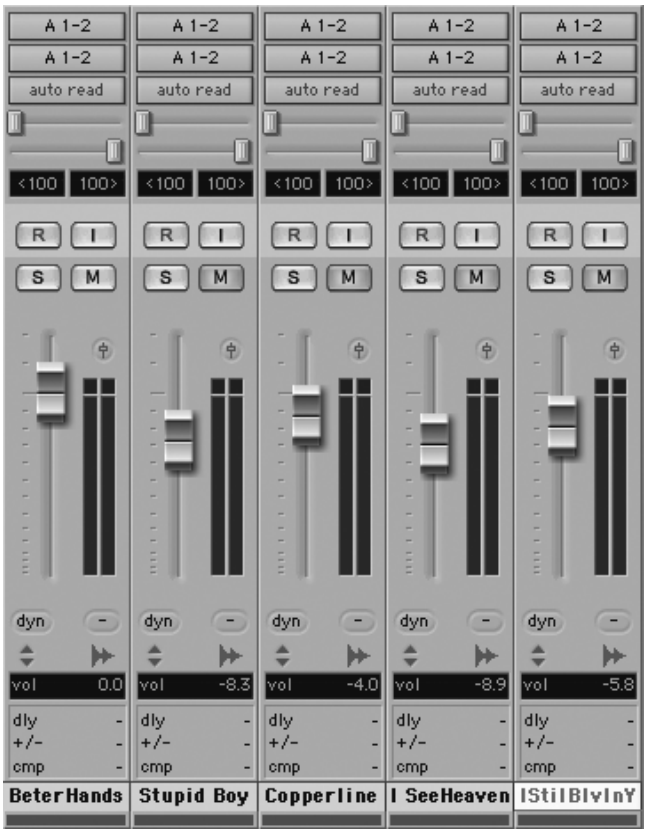

Figure 10.2 Carefully match the levels of your reference songs to the level of the song you're mastering.

First EQ

Let's get started. Load up an EQ plug-in. I've selected a five-band parametric EQ, the Sonnox Oxford Equalizer, but you can use any equalizer you want. A parametric-type EQ would be the first choice for most mastering engineers, but a graphic type might work as well for basic shaping.

The first area I like to look at is the midrange, especially the range where the vocal lives. Listen to the presence of that area and the clarity of the vocals (or the lead instrument). At this point, unless you detect significant problems compared to your references, I recommend approaching things conservatively. Perhaps a decibel, even a half-decibel boost or cut in the midrange (though I'm also not afraid to

crank the EQ gain up or down if that's what it takes to get the job done). I begin working around 500 to 1,000 Hz, the "thickness" area of many vocals, with a moderate bandwidth. Then I'll listen to the 3,500-Hz range for the clarity and intelligibility; look to give the vocal a little "lift" to ensure you can understand the words well.

The idea is to help the voice sit well in the track without compromising the background tracks too much—you don't want to make the guitars harsh or give the snare too much "crack." Be careful of the 2.5-kHz range—this is the edgy, harsh, "painful" range. Constantly bypass the EQ to hear exactly what the processing is doing to the signal. With practice you'll easily be able to hear a half-decibel (or even less) change in an EQ range. Also, constantly switch between your track and your reference tracks. How does the midrange compare?

Boost or Cut? Most recording and mastering engineers agree that generally it's better to cut rather than boost the gain of a range of frequencies with an EQ. You'll get less phase shift, plus the sound is usually smoother and more natural—it will sound less "equalized." So instead of boosting the midrange, consider cutting the lows and the highs, and then increase the overall volume a bit. The result is the same—more midrange—but the sound is cleaner and it sounds better. The exception to this is when using a high- or low-shelf EQ. (A shelving EQ raises or lowers all the frequencies above or below a particular point.) Our ears are less sensitive to highs and lows, so there isn't as much problem boosting a wide group of frequencies in those ranges.

Once the midrange has been shaped a bit using a band or two of EQ, save your DAW project file under a new name—I went with Better Hands_EQ1 so I could distinguish between different stages of processing as I move forward through the mastering session.

Next, listen to the bottom end. Focus in on the overall low-end sound compared to your reference recordings. The low end can be the hardest EQ area to get right; it's difficult to get bass to translate well to

different speaker systems. Listen very carefully and switch back and forth between your references for constant comparison. Begin to shape the bottom of your track with EQ, trying to match the tone and level to your references. A subwoofer can be a big help for revealing extremely low frequencies that might be lurking below where your full-range monitors operate.

The Point of No Return If, after trying various EQ settings, after tons of comparisons to your references, and after listening on other playback systems, you just can't get the bass to sit right, it may be time for drastic measures. One solution is to go back to the drawing board—re-mix the track, paying special attention to how the kick drum and the bass instruments relate to one another. Try to "stack" the frequencies for the instruments so they each have a space in which to live. If the kick drum has a big, low thump, then you might consider cutting the lows on the bass guitar so it will sit on top of the drum. Or, if you want a boomy bass guitar, go for more midrange crack and snap from the kick drum. But it's probably going to be almost impossible to get both a boomy kick and a boomy bass guitar to sit in the same track well; they're trying to occupy the same space and they are going to fight each other and muddy up the track. You might also consider low-pass filtering other tracks, such as guitars and keyboards, to allow extra low-end space for the kick and bass.

A mistake many engineers make when mixing is to try to make every instrument sound huge—and they often do this by soloing each instrument, then EQing it for maximum size. Unfortunately, this can result in a muddy, crowded, messy mix. In many cases, if you solo an instrument from a well-done mix, you'll be appalled at how awful it sounds in isolation. But in the context of the mix, it works perfectly. This is because the mix engineer has tailored each sound to complement the others and the intent of the mix.

There is another solution to the problem of reaching a point of no return and having to go back and do a new mix—separation mastering. We'll cover this in Chapter 11, "John Vestman—Focus and Passion," and Chapter 12, "Separation Mastering."

Figure 10.3 Subtle EQ is being applied to shape the overall tone of the song.

At this point, let's move up and listen to the top end. Is it as open, airy, and shimmery as your references? Does yours sound darker or brighter? Start around 10,000 Hz (10 kHz), adding a bit of lift to open things up or a subtle cut to even things out if they're too cutting (see Figure 10.3). It probably goes without saying that you should constantly mute each band of the EQ (if your equalizer allows this) as well as the overall EQ so you know exactly what you're doing. Also remember to listen back and forth to all your references. Once you're satisfied with the progress so far, save your file under another name. (I'll use Better Hands_EQ2 for mine.)

Just like the low end, there are dangers in the high end. The trend today is toward a very bright, sizzly high end—many times this is a result of super-heavy limiting on the track, which can make things

harsh and cutting. Much modern music is very fatiguing to listen to, which can be attributed to overly bright mastering. But the ears you have to satisfy are yours—dial in the top end you like, remembering to compare to your references. Listen at a few volume levels as well; sometimes harshness won't be as evident at low levels as it is at higher levels.

Over and Out Keep an eye out for "overs" as you're adding EQ, especially if you are boosting frequencies rather than cutting. If red lights start showing up on your plug-ins or gear, you may need to trim back the level of the raw track by a decibel or so to keep things clean. The last thing you want is to inadvertently add distortion to your master!

First Dynamic

Now that you have the tonal balance of the song starting to roughly take shape, let's walk the volume up a notch. Insert a single-band limiter at the very end of your signal chain.

Take it easy—resist the temptation to *smash* everything! Instead, tweak the limiter so you're adding 3 dB or so of gain. In my case, this doesn't even result in any gain reduction on the peaks of the track. It just takes the overall level of the track up to around 0. Now go through and re-balance the levels of your reference tracks to the one you're mastering; you'll probably have to walk each of them up by 3 dB or so to bring the levels back in line. You may also need to adjust the volume of your monitors to stay in that 85-dB comfort range—you want to hear accurately, and if the volume of the speakers starts to grow, you may miss details because of the added "excitement factor" as things get louder.

Look for Loud When you're applying dynamics processing—compression and limiting—it's best to work on the loudest section of your song first. If you apply limiting, for example, to bring up a

soft section, you may be inadvertently crushing or even clipping a louder section. If you work on a loud section, then the softer sections will be raised by a similar amount, with no danger of accidental clips or dynamics squashing.

If your limiter allows, set the *ceiling*, which is the highest level the track can reach, to just below 0; I set mine to –0.1. You could go as low as 0.5 dB if you like. Some CD duplicators will interpret a full 0 level in a file as a clip and reject the track. Allowing a couple of tenths of a decibel cushion won't affect how loud your track sounds, but it will prevent clipping problems. This also gives you protection from accidentally pushing the limiter's output to where you're getting overs. Set the limiter to a moderate release time.

What about Presets? Most limiter plug-ins and mastering boxes come loaded with presets called things like "CD Master," "Loud Master," "Rock," and so on. Be cautious with these. It's hard to know where you're at with presets. There's just no way for whoever programmed the preset to know what your music sounds like—how loud it is, how big the peaks are, and so on. Basically, they can't know where you're starting from, so there's no way for them to apply the right processing using a preset.

Instead, start from default settings (which usually have all parameters set to apply no processing), and slowly add the amount of processing you feel is best for your song. Better to start off conservatively and to work your way up than to hope that a preset will pop up that's perfect for your song.

Conversely, being able to *save* your own presets is very valuable. In many cases, as you work on the collection of songs that make up an album, the EQ and dynamics settings will be remarkably similar, especially if you mixed everything at about the same time, in the same place. Storing presets of the settings for one song can make mastering other songs on the same projects much faster because those settings can be instantly recalled.

Figure 10.4 Using a limiter to add 3 dB of level to the track with minimal gain reduction.

Listen to your track both with the limiter active and with it bypassed (see Figure 10.4). Limiters can start to make things edgy-sounding as you push up the level. You're not pushing things hard at this point, so harshness shouldn't be a real issue. But if you do hear your track starting to become edgy and harsh, either go back to your EQ or insert a second EQ to tame the edge. If there is distortion or washiness when the limiter is in, back it off until the sound cleans up. When the limiter settings work for you, save the file under a new name; I'm using Better Hands_EQ2-L.