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Types of EQs and Their Controls

Equalization filters come in three types: peak, shelving and pass filters (high- and lowpass). EQs can use passive or active electronic elements, digital algorithms, or even vacuum tubes to shape the tone of the source audio signal. (Contrary to what you might think, vacuum tubes used for audio purposes do not create a sucking sound like a vacuum cleaner.) Digital EQs use programming algorithms instead of electronic elements to alter the signal. Both analog and digital EQs generally use the same set of controls to alter the frequency content.

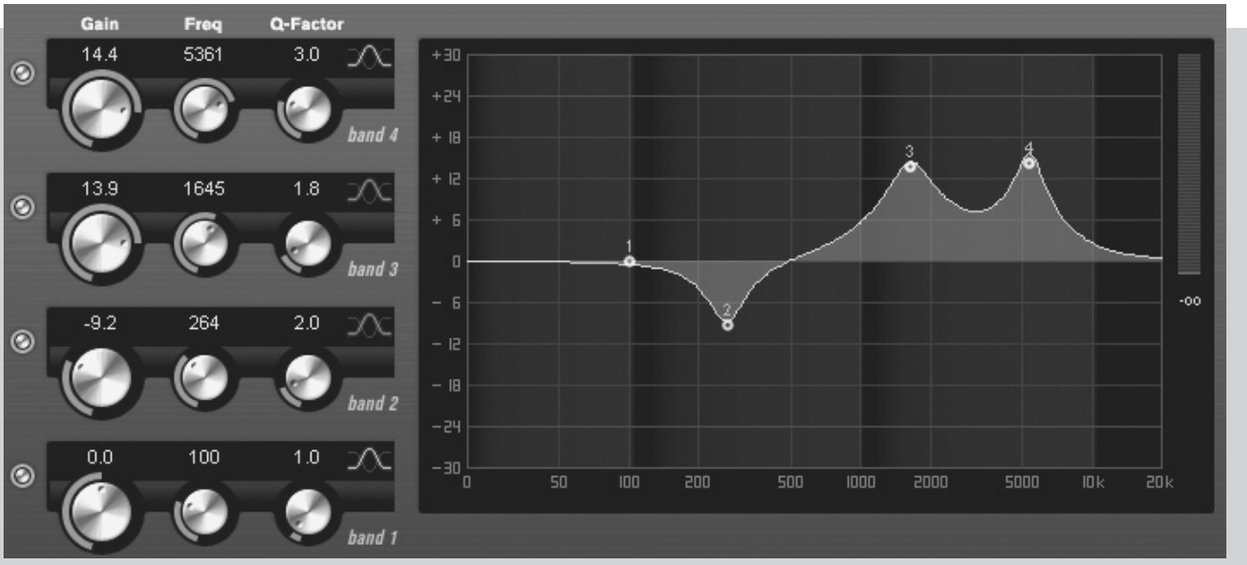
Peak Filters

Peak filters are the most flexible and probably the most often-used filter types. They have three variables or controls: frequency, Q and cut/boost.

The frequency control, as the name suggests, allows you to select the center frequency of the peak filter. Peak filters operate using a bell curve, in which equalization is heaviest at a center frequency that falls at the top, or peak, of the bell curve. This process allows for smooth operation across a wide range of frequencies.

The Q control adjusts the width of the bell curve. By changing the Q, you can adjust the width of the frequency range around the chosen center frequency. A higher Q setting will affect a narrow bandwidth around the center frequency. A lower Q setting will affect a wider bandwidth around the center frequency. See examples on page 10.

The cut/boost or gain control determines the level of the selected frequencies. A cut, or gain reduction, will make the frequencies softer; a boost, or gain increase, will make the frequency selection louder.



▲ *Peak filters*

Compressing Bass

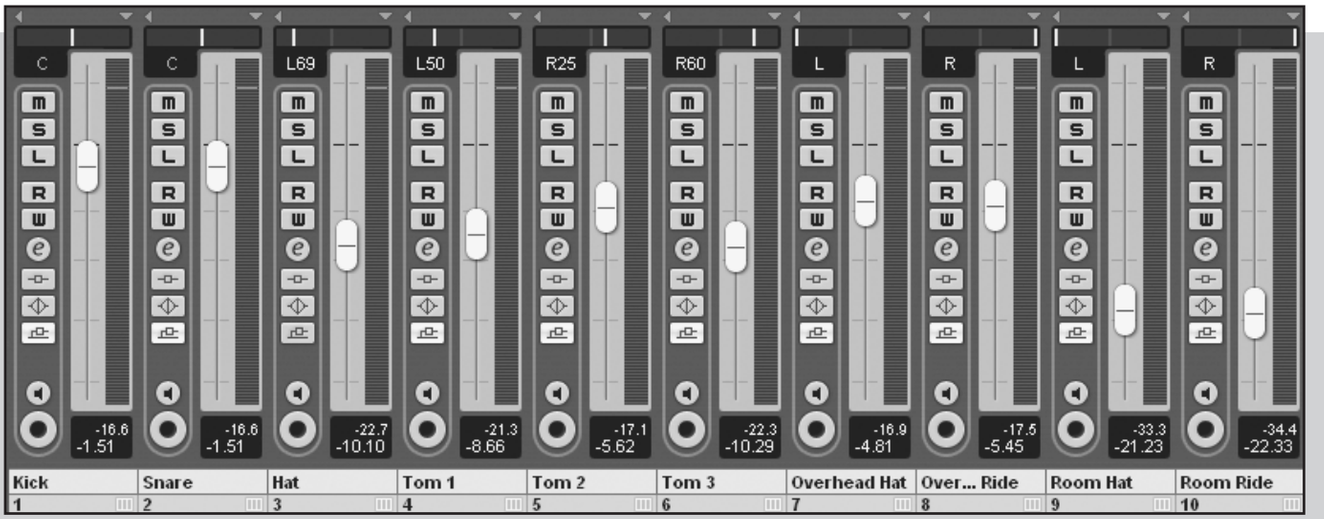
Getting the bass part to have punch, clarity, and a solid feel throughout the song is one of the hardest things to pull off in mixing. Bass can be particularly challenging because it has both percussive attacks and long sustains; the goal is to get the attack and sustain to sound even and consistent. I find that serial compression works best for solving this problem (see graphics below).

▲ ***Bass track with a single compressor on slow attack.***

▲ ***Bass with a limiter added in the chain with the compressor. Notice how attacks are more even with the sustains.***

The compression example I gave for kick drum also works well for bass. On bass, however, I almost always prefer using a compressor followed by a dedicated limiter, rather than two compressors. However, you can use two compressors effectively if one of them has fast enough attack and release times. A good starting place for bass is to set the first compressor for a relatively slow attack (30 ms) with a mid to slow release (80 to 200 ms). Try a ratio of 4:1, or even higher. With this compressor, we are focusing on the sustained notes of the instrument. You'll need to adjust the parameters based on the type of track and the performance to get the instrument to have a solid sustain. After you have the first compressor rocking, adjust the limiter so the attacks are smoothed out and relatively even when heard alongside the sustained notes. Bass usually gets quite a bit of compression in most mixes, so don't be afraid if the gain-reduction meters are compressing a lot. Just use your ears.

Talking about the drummer's perspective reminds me of another oft' debated issue. Should the drum kit be panned in the mix as though the listener is sitting behind the drum kit, or as though he were watching the drummer play onstage? In my opinion, there is no right or wrong answer. Some people prefer one way over than the other, and you will hear done both ways on commercial CDs. My advice is, do whichever you prefer. But when I see 16-year olds "air drumming" as they rock out to the latest musical flavor, they are always drumming as though they are sitting behind the kit. So I usually go with the drummer's perspective to make the air drummers of the world happy.



▲A panned drum kit—notice the pan positions of each drum. (Blue pan indicator lines are above the faders.) This kit is panned from the drummer's perspective.

After you have decided on perspective, you'll need to pan the rest of the close-miked drums so they make sense with the overheads. I use one of two approaches. The first is to solo the overheads and pan them hard-left and hard-right. Since the overheads are intended to give you a stereo image of the drum kit, you should be able to hear where in the stereo field the hi-hat and toms occur. All you do then is, pan the close mics to match where drums fall within the overhead stereo image. This is best determined one track at a time. Start with the hi-hat and gradually bring up its fader with the soloed overheads. Move the high-hat in the stereo field so the image doesn't shift at all when you make it louder or quieter. (It should just get louder or quieter.) Now do the same with the toms and any other close mics. The second approach is to disregard trying to get the close mics to exactly match the image of the overheads and just pan everything wherever you want, and let it rock.