

NUTS and BOLTS

PART 22

Mis-applying Effects

BY ALEX CASE

This month we apply some of our studio tools in ways that might seem like some sort of trick. We review some unlikely, unbelievable, or at least counterintuitive approaches to using effects. The beauty of this April Nuts & Bolts column is, it ain't no joke.

Compressualization

When is a compressor not a compressor? When it's an equalizer, of course. A de-esser to be exact. De-essers attenuate the 'ess' sounds in a vocal track made by the letter S. A loud, strong ess of a vocal can zap you with an ear ringing, pain inflicting burst of high frequency energy.

Using eq to attenuate the problematic high frequencies associated with the esses will also rob the vocal of its airy, shimmery, voice of the pop music gods quality that you've gone to so much trouble to create. The fact is, the vocal probably sounds great, if not perfect, whenever the singer isn't singing words with the dreaded letter S. To get an edgy, emotion filled vocal that cuts through a mix crowded with fuzzy guitars, hissing cymbals, and shimmering strings, you've got to go for a bright vocal sound from the start—it influences mic selection, mic placement, and of course the effects you add. These overly bright esses are an almost unavoidable side effect of otherwise good recording practice.

The solution is to use a compressor instead of an equalizer. The goal is to run the vocal through a compressor that attenuates the vocal only on the problematic ess sounds; the rest of the time, the compressor should not change the magic vocal one iota.

Trouble is, no amount of fiddling with the threshold, attack, release, and ratio controls will accomplish this. These ess sounds happen so quickly that only an extremely fast compressor attack time could grab them.

Moreover, even though they are perceptually very loud and annoying, the typical changes in loudness that occur from verse to chorus, line to line, and even word to word are much greater swings in amplitude than a little ol' letter S. As a result, the compressor reacts to the louder parts of the singing, not the individually, perceptually louder sizzling sounds of the esses. We need a way to warn the compressor that an S is happening, despite the expressive changes in dynamics of the vocal track.

We accomplish this through clever use of the compressor's side-chain. The side-chain offers an alternative input into the compressor—an input that won't have a corresponding output into the mix. This other input is just used to tell the compressor when and when not to compress.

To get rid of the esses in the vocal, we route a copy of the vocal signal with the esses emphasized into the side-chain input of the compressor. As shown in Figure 1, we split the Lead Vocal, send it to a parametric eq, and then to the compressor side-chain input. Set the eq to a narrow (high Q) but large boost (+12 dB or maybe more) at the problematic frequency range. To find the exact frequency range, you can hunt around from about 2 kHz–8 kHz until the compressor starts to react to the esses.

You'll find you can zero in on other sibilant problems that might arise—it's not just for esses. You can de-F, de-X, de-T, de-Ch, de-Sh...this basic signal flow structure is effective at removing many related problems. A sharp boost enables the compressor to duck the signal in reaction to a single spectral spot.

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You can broaden the bandwidth of the side-chain parametric eq to catch a range of sibilant sounds. This can be pushed to other applications: de-squeak an acoustic guitar, de-thump a piano... If you find the de-Suck setting, email me.

Some way cool compressors have a switch that lets you monitor the side-chain. This enables you to really fine tune the triggering frequency that gets the hyper-boost.

Once you get the compressor to react to the esses, you must then use your good judgement to set the compression ratio just right. Too high, and the compressor overreacts to each S, literally giving the lead singer a lisp. Too low, and the esses continue to annoy. Like many mix

This effect is nothing more than variable eq. If you've a parametric equalizer handy, patch the electric guitar or keyboard track through it. Dial in a pretty sharp midrange boost (high-Q, 1 kHz, +12 dB). As the track plays, manually sweep the frequency knob with one hand and salute Jimi and Stevie with the other.

Hip DAWs with automated equalizers make it easy to program this sort of eq craziness. Without automation, you just print your wah-wah performance to a spare track.

It's also worth exploring other frequency ranges. Try cuts as well as boosts; use narrow and broad bandwidths; try sweeping a highpass or a lowpass filter or shelving eq.

And perhaps most importantly, apply it to any track. Piano offers a welcome wah-wah opportunity. It seems perfectly appropriate to wah-wah a cello or a snare drum—absolutely anything.

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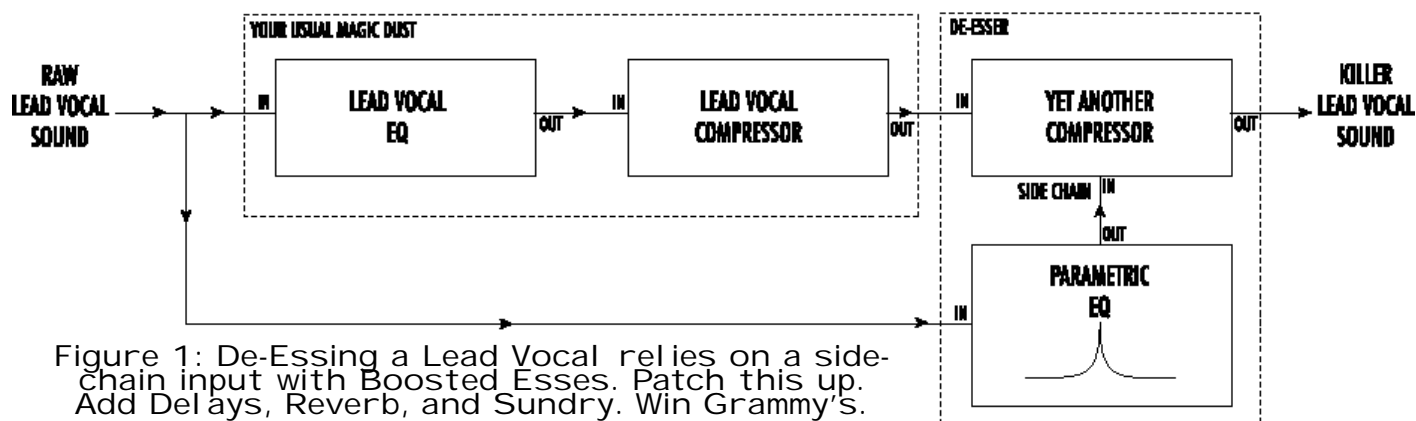


Figure 1: De-Essing a Lead Vocal relies on a side-chain input with Boosted Esses. Patch this up. Add Delays, Reverb, and Sundry. Win Grammy's.

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moves, it is sometimes useful to tweak it too far (where the de-esser is audible and unnatural) and then back off until you imagine that you can't quite hear it working.

In the end you should be able to push the eq on the actual lead vocal hard, without fear of sibilant destruction. Then your lead vocal can have all the grit, gasp and guts that pop music demands. Beth of luck.

Eqwahlization

"Wah-wah." What an effect. Used tastefully, it can give a tune that perfect extra push toward, well, whatever you're aiming for. How's it done? With a Cry Baby effects pedal (or one of its siblings), naturally. But what if you don't have one? What if you do have one but the last nine volt battery in the Tri-State area just pooped out?

Stimulator

Amp simulators have been a boon to the home recordist. Some (most, actually) guitar amps only sound good when they are cranked up to ear splitting levels. Something musical happens as the amp reaches its limits—electronically, mechanically, physically, and metaphysically.

But what is an up-all-night home studio to do? Record direct and achieve that guitar amp near death experience courtesy of amp simulation hardware/software. Neato.

Perhaps you use DI boxes when recording bass. That is pretty common practice these days. Great sounding bass amps require money, care, strength, space, a good bass guitar, an excellent bass player, and massive amounts of acoustic isolation when tracking (there's that "the amp's too loud" problem again). The direct inject device makes

it possible to use the signal coming out of the bass guitar itself for recording onto tape or disk.

Think about it. We stick microphones in front of instruments to convert the noise they make in the air into an electrical signal on a wire. Once the music is “in” that mic cable, we can run it through our racks of audio equipment. Such an approach makes a lot of sense for voice and

rest of the recording chain—equalize it, compress it, and print it to tape.

The DI is quite effective on bass. The sound can be tight, crisp, and rich with low end warmth. In fact, even when you have the luxury of recording the bass through an amp, it is common practice to simultaneously record the bass with a DI onto a separate track. With both an amp sound and a direct sound on tape,

it always sounded? It's honky, with no highs, muddy lows, and zero dynamic range. That is what the amp does to the signal coming from the electric guitar. And the electric guitar just isn't an electric guitar without it; I don't think Leo Fender ever wanted us to hear the sound coming out of the guitar itself. So whenever a session forces us resort to recording electric guitar direct to let the neighbors sleep, it is essential that we grab the amp simulator.

The amp simulator offers us a single stomp box, rack space or pull-down menu that throws in a ton of distortion, compression, equalization, and god only knows what else. This effect begs for experimentation!

Don't let anyone pull a fast one on you. You can use compression to equalize, equalization to wah-wah-ize, and amp simulation to improvise. Happy signal processing.

Alex Case makes the “wah-wah” face whenever he uses the electric pencil sharpener. Offer therapy via case@recordingmag.com.



Why not skip the whole ‘electric signal to amp to acoustic noise to mic to electric signal’ thang?

piano. But electric basses are, um, electric. Why not skip that whole ‘electrical signal to amp to acoustic noise to microphone to electricity’ thang? This simple view motivates the DI.

A DI has to take care of some electricity book-keeping: it lowers the voltage, lowers the impedance, and balances the signal so that what comes out of the DI behaves very much like the signal that comes out of most microphones. Off it goes into the

you have more options for creating a powerful bass sound at mixdown.

Record electric guitar through a direct box and—blip, boink, flirp—ouch. Sounds thin, perky, silly, [other colorful descriptions thoughtfully deleted—Ed.]. It won't wake the neighbors, but it won't sell any records either; the guitar amp is too much a part of the tone equation.

Perhaps you've tried to play a CD through a guitar amp. Notice how bad