HOW TO MANGLE YOUR SOUND

BEAUTY TIPS FOR SCRUMPTIOUSLY UGLY DRUM SOUNDS

Many musical styles call for drum sounds so unique – so closely tied to an individual song – that they become an essential part of the composition. Using today's technology (digital recorders, performing software, and audio editors), you can easily mangle your own sounds so that the mood and personality of your drums complements a song. But we're not talking about just adding a little plate reverb, some band pass filter, or a gentle bit of delay. When mangling drums, you'll try to create sounds that may be totally unrecognizable from the original source yet can still be used to lay down a solid groove with an attitude.

Mangling your sound is a three-step process: first, collect raw sounds that you're interested in destroying; next, rip them apart with software applications designed to alter the signal in a number of different ways; finally, use your newly-designed sounds in the recording studio or at a live performance.

GATHERING RAW MATERIALS. There are as many different approaches to gathering raw audio as there are drummers. Here are just a few ideas to get you pointed in the right direction:

Recordings of your own acoustic instruments. If you're got the tools, you can start with the highest-quality files you can produce. But, since you're going to rip these boys up anyway, you can create your source recordings with only the bare minimum of essential recording gear: a cheap microphone directly patched into your computer's audio input. If you already own an electronic drum brain, you've got more than enough raw materials. Just blow them into a software host – either as data or as a recording – to use these sounds as your seeds.

BY NORMAN WEINBERG

MORE MANGLING

Fig. 1. Fuzz+: Simple, free, and effective

Fig. 2. Reason: Processing a single REX slice through Scream and preparing the sequencer to export a single hit as an audio file

Fig. 3. Trash: The WMD (weapon of mass distortion) of plug-ins

"When mangling drums, you'll try to create sounds that may be totally unrecognizable from the original source yet can still be used to lay down a solid groove with an attitude"

Recordings of the world around you. If you've got a minidisc or other portable recording device, you might think about gathering your own sounds from the environment. Anything is a potential source – from the sound of a water fountain in the mall to the funny "clunk" your truck makes every time you turn left.

Sounds from retail sample packages. There are scores of outstanding sample packages available, and nearly all of them have a "concept" that may guide you toward making an intelligent choice. For example, there are sample libraries of indigenous drums from just about anywhere in the world, sample libraries of famous heavy-hitting drummers, and libraries of everything else from first-rank marching drum lines to found instruments.

Sounds from the Net. Run a Google search for free AIFF, WAV, or REX files, and you're sure to come up with a ton of great source material. You'll discover drum samples from vintage drum machines and analog synths as well as demo samples from several of the major sound publishers. Don't forget to follow links between web sites offering free audio files, and be sure to check the forums on major music web sites. In addition to drum and percussion sounds, you might want to listen to sound effects and industrial or human noises that you can find. Those types of sounds can be warped into great sounding percussion instruments. Since these materials are free and don't take up that much hard disk space, grab 'em when you find 'em! You can always save them to CD or DVD so that there're not filling up your main drive, and return to them when you're looking for more materials.

MANGLING THE SAMPLES. Once you've selected your source materials, it's time to bestow them with some of your individuality. Remember that our goal is to radically transform the original audio signal into something with a serious point of view.

Let's look at just a few of the options and some of the software that might be available to you in the quest to destroy your drums. One of your first stops should be kvraudio.com. Here you'll find information on nearly 1,000 audio plug-ins and hosts. Some are free, some are shareware, and others are commercial packages. Some of the commercial products have free demos so that you can see how they operate and how they sound. You'll find software for both the Mac and the PC, so all the bases are covered. KVA also has a very active forum for sharing ideas and information.

Your first step is to load the sound file into a host program and then pass the sound through a plug-in. Software hosts such as Peak, Sound Forge, and WaveLab are designed as sound editors from the ground up. Other hosts included full-featured sequencers like Digital Performer, Cubase, or Logic. Programs such as Reason, Live, FL Studio, Acid, and even GarageBand will also open audio files in a variety of formats and let you use plug-ins to alter the signal. Let's look at just three of several possible options.

Fuzz+ (see Fig. 1) is a free plug-in that you can download from audiodamage.com. Just click on the Free Downloads link, pick your flavor (Mac OSX, OS9, or Windows), drop the file in your plug-in folder, and you're ready to put Fuzz+ to work. Two knobs control how much fuzz is applied to the audio signal, and an output knob controls the overall volume of the device. There's also a bypass button so you can quickly compare

your original source to the altered version. Try adding some Fuzz+ to snare drum, kick drum, and crash cymbal samples.

More sophisticated than Fuzz+ is the Scream 4 Sound Destruction Unit found inside Reason. One of the most popular and powerful computer music programs, Reason offers plenty of ways to slice, dice, fold, spindle, and otherwise mutilate your sounds. Scream has ten different damage settings: overdrive, distortion, fuzz, tube, tape, feedback, modulate, warp, digital, and scream. Each setting uses a different algorithm to inflict various types of audio damage, and each has two additional controls that further tweak the desired degree of grit and grime. For example, the tube setting has controls for contour and bias while the digital setting includes knobs for resolution and rate. There's also an effective three-band EQ (+/- 18dB) and a body setting that places the sound inside a resonant body. There are five different body types with controls for resonance, the relative size of the body, and an envelope follower effect. When all the controls are taken together, pushing sounds through Scream will certainly change their character and function. Since Scream is so versatile, just about anything (with the right settings) will sound great going through this plug-in.

A note about using REX files inside of Reason: While it's easy to pass an entire REX file through a number of different effects, you could also process a REX file

BIG BOTTOM | BY MIKE SNYDER
FATTEN YOUR STUDIO KICK SOUND

I'm on a seemingly unending quest for the perfect recorded drum sound. It began with my first recording session at 15, when my sound was, shall we say, not so happening. Fortunately, it's gotten better. And along the way, I've learned quite a few tricks to get a killing kick. One of them is capturing the kick drum's extreme low-end frequencies by using a speaker as a second microphone.

UMM ... HOW CAN THAT WORK? Well, a speaker and a mike are both transducers. A mike turns vibrations (from air that hits the mike's diaphragm) into electrical current. We generally use speakers to do the opposite — to turn current (from the power amp) into vibrations (in the speaker cone). I'm sure, though, that you'd hear sound from a mike if you held it close to your ear and used it as a speaker. But ... don't do it. I don't want a blown mike on my conscience.

WHAT SPEAKER SHOULD I USE? We're interested in capturing only low-end frequencies, so the overall quality of the speaker isn't that important. I used a Bose bookshelf model with a 6.5" speaker (probably the smallest you'd want to go). As long as it reproduces good-sounding low end, any speaker will work just fine.

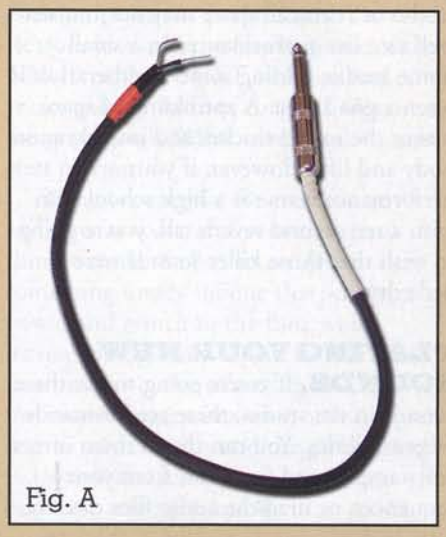
Fig. A

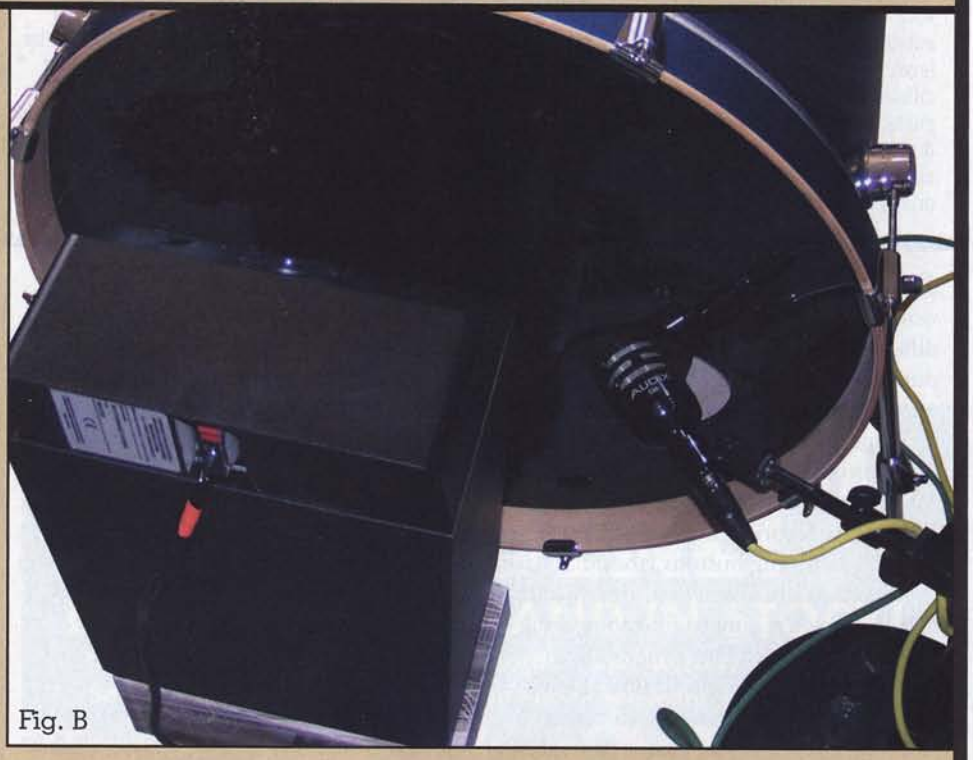
Fig. B

HOOKED UP. You hook up the speaker much the same as you would a standard mike. The only difference is that you need to plug the speaker into a direct box (DI) and then into a mike preamp directly from the DI. Attaching the speaker to the DI requires a shielded cord with bare wires (which connect to the speaker) at one end and a 1/4" male plug (which plugs into the DI) at the other. I customized a cord by cutting off the end of a guitar cable (about 12" in length), stripping the other end, and tinning the bare wires with solder so they wouldn't fray (Fig. A).

Play around to find the best speaker position for the kick being recorded: Every drum is different! Change both how far the speaker is placed from the head and where the middle of the speaker is pointing. Also experiment with the placement of the traditional mike. The setup I use quite often is shown in Fig. B. The microphone (an Audix D6) is at a 45-degree angle across the hole in the front head, and the speaker is about 4" to 5" from the front head and slightly off center – where I hear the lowest frequencies coming from the drum.

THE MIX. The right mix depends on many factors. At minimum there will be EQ and some compression involved. Think about carving out separate sonic places for the kick drum and the bass guitar, which will help keep the mix from being muddy. Remember, getting the right sound for the *music* is the ultimate goal.

Be sure to check out the audio samples at mikesnyder.net/drum/bigbottoml.

KNOB BY KNOB | A PEEK INSIDE A COMPRESSOR

BY STROTHER BULLINS

A compressor can be a drummer's single most valuable signal-processing component in any amplified performance or recording situation. Essentially an automated volume control, a compressor attenuates an audio signal when it rises above a predetermined level. For drummers, this means that the difference between your loudest and softest kick, snare, tom, or cymbal hits can be slightly or dramatically reduced, thus producing a more consistent, controllable, and – especially for drums – "meatier" sound.

Below, we explore the most common compression parameters, exemplified via a diagram of FMR Audio's widely acclaimed yet inexpensive RNC1173 (it lists for only $199).

Threshold is a preset level that the signal must exceed to be compressed. To compress only the loudest transients, threshold should be set low. For more compression, the threshold level should be increased. For compressors with no threshold adjustment (a fixed threshold), input level can be increased for more compression or reduced for less compression.

Ratio (or slope) is the proportion of change from input level to output level. For example, a 3:1 ratio creates a 1dB change in output for every 3dB of change in input. For more natural sonic characteristics, some compressors offer a "soft knee" setting, which gives low-level signals low ratios and high-level signals high ratios.

Attack controls how quickly compression happens by responding to the input signal's transients. Longer attack times allow larger "peaks" to escape before compression occurs. As a result, longer attack settings are puncher, and shorter attack times provide softer transients.

Release determines how quickly signal gain returns to normal value. What is often referred to as "pumping" occurs in release time; noise increases during the release. Short release times better follow fast dynamic changes and keep levels continuously higher. Those with fixed release settings may be automatically adjusted or set at a common level.

Gain is simply total amplification measured in dB. Here, output gain adjustment is provided.

on a slice-by-slice basis. It's a little more work, but you can process each slice differently and use them independently or put them all back together again for a totally unique sound (see Fig. 2).

Steps up from Scream are the dedicated plug-ins designed to do just what you might expect: destroy your drum sound! One of my favorites is iZotope's Trash (Fig. 3). With big buttons labeled Squash, Pre-Filter, Trash, Post-Filter, Box Model, and Buzz, you're sure to find something you like – or hate. This program is incredibly powerful and flexible. Here's just a taste of what you can do with your drum sound when you pass it through a plug-in like Trash.

The Squash module serves as a dynamics processor of the source audio. It contains a multiband compressor and noise gate. The Pre-Filter module adjusts the sonic characteristic of the source before adding distortion, while the Post-Filter module controls the shape of the tone after it's been processed.

The Trash module provides 47 unique distortion algorithms that can be tweaked in terms of input gain, output gain, overdrive, wet/dry mix, and distortion character. Each algorithm is named with a brief description of what it does and how it might best be used. Add to this the ability to work with multiband distortion (for example, adding fuzz to the lower frequencies and overdrive to the higher frequencies) and the ability to pass the sound through two stages of this distortion module, and you've got a very fierce machine to put to work attacking your sounds.

The Box module button contains a number of sonic modelings from cabinets, speakers, and devices. In this module, you can select the input and output gain as well as the mix between wet and dry signals. You can choose between a dynamic, condenser, or ribbon microphone and adjust the microphone's positions with the separation and spread controls.

The Buzz module controls the delay portion of the program. There are radio buttons for selecting the delay type between tape, tape/tube, analog, lo-fi digital, broken bit, and digital. From there, you can tweak the dry output, the wet output, the spread, the delay (in ms or bpm), feedback, and trash (the amount of degradation for the delay). While all of Trash's modules are designed to be used at the same time, each is so powerful that even activating one module by itself can result in some pretty slammin' sounds.

With any of these tools, you might want to process all the instruments in your kit the same way to get a sense of consistency or uniformity. Or try working with all the drums one way and then process all the cymbals or accessory percussion in a different manner.

Once you've mangled your sounds to your liking, it's time to save them to your hard drive. Depending on your tools, you might want to save them as WAV or AIFF files – the two most common uncompressed formats. Most programs will read either type of file, but it's a good idea to export one before spending your time exporting a large number of sounds.

And here's a bit of advice: Realize that the totally killer sound coming from your monitors (or headphones) in your home studio or rehearsal space may not transfer well to a live performance. In a small home studio, adding some reverberation is often a good idea. A sprinkling of space makes the sound thicker and imparts more body and life. However, if your performance venue is a high school gym with a ten second reverb tail, you're going to wish that those killer sounds were a little dryer.

PLAYING YOUR NEW SOUNDS. If you're going to use these sounds in the studio, there are thousands of possibilities. You can throw them into a soft-sampler and fire them from your sequencer, or drag the audio files directly

into your recording software.

In live performance, you can rely on a variety of techniques to trigger your newly created creatures. If you're playing a totally electronic kit that let's you blow new samples into memory or read them off a flash card, all you'll need to do is follow the instructions and dial them in from your kit's brain. If your electronic kit doesn't offer the ability to load new samples, you'll have to MIDI your rig into something that does – a dedicated sampler, a sampling drum machine, or a computer.

If you're an acoustic drummer, you can still add any of these sounds to your performances, but you'll need to add some sort of technology in your rig. You could use triggers on your drums to blend both the acoustic and electronic sounds together, or you could add a few electronic pads around your kit to trigger a couple of sounds from time to time. If you really want to make these custom drums sounds part of your personality, you might think about adding a multipad (such as a drumKAT or SPD-20) to your rig. With a multipad, you'll be able to control a large repertoire of destroyed drum sounds.

For my money, the smartest way to go for live performance is a laptop computer with an audio card that has MIDI inputs. With a laptop, you've got tons of portability, and you use the same machine to design your sounds and play them back in performance. Programs are much more stable now than they were a few years ago, and it's common to find performers blending computers into their rigs. If you've used a program like Reason or Live to mangle your sounds, you can use the same programs for performance. In Reason, just load the files into one of the NN-19 or the NN-XT samplers and you're golden. In Live, drag the files onto the grid, assign MIDI note numbers, and start playing.

Whatever you use for your source audio, your tools, and your rig, try to think outside the box to arrive at something totally unique that will lend power and punch to the tune while leaving enough sonic space for the other instruments in the recording. Placing your own sonic fingerprints on a tune is a great way to stay creative, and the process itself is a wonderful learning experience. So get out there and rip it up! ■