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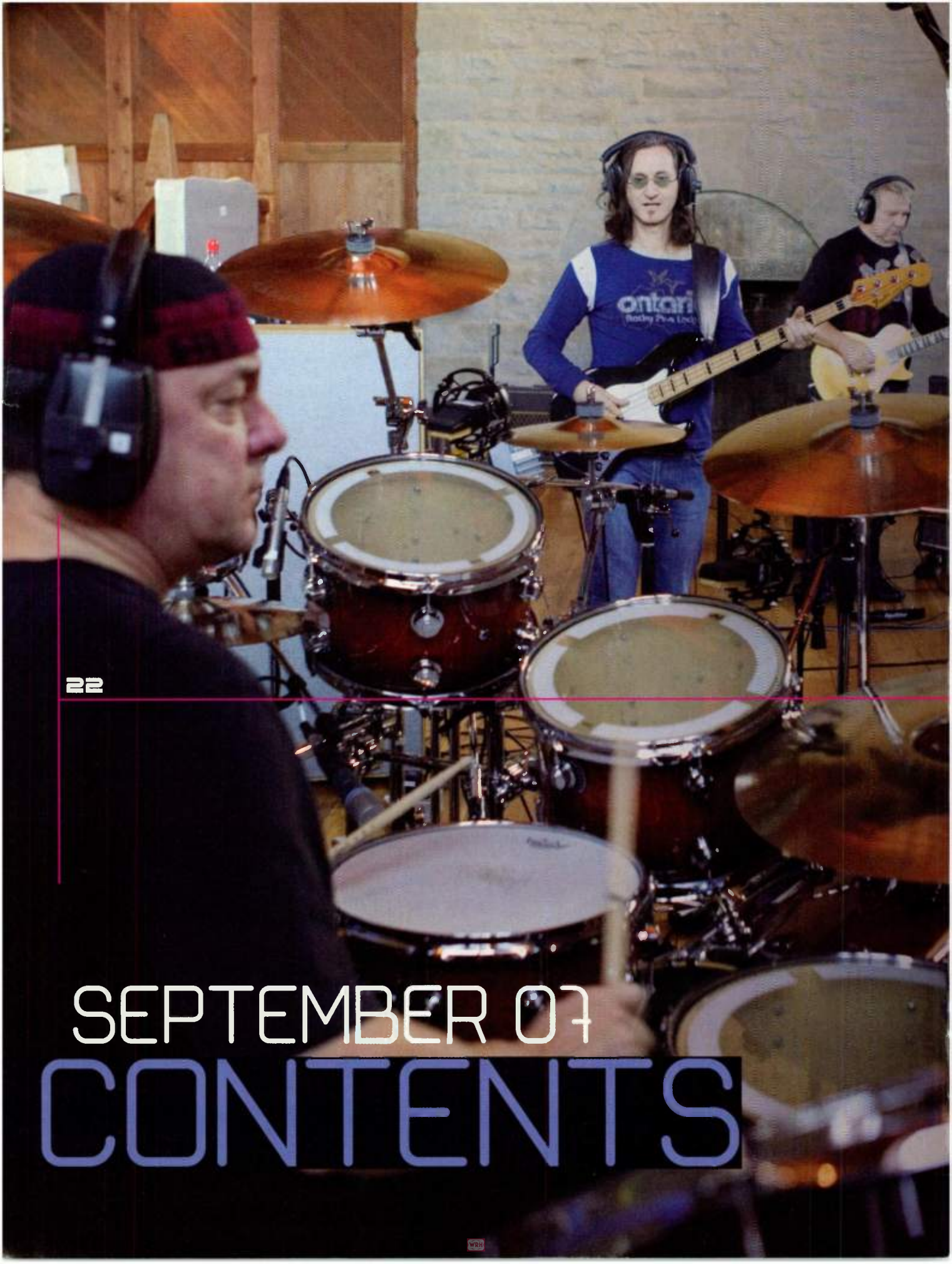

SEPTEMBER 07

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Cover/this page photo: Andrew MacNaughtan

Talk Box

MAKE BETTER RECORDINGS: LEAVE THE STUDIO!

Well, of course, don't abandon recording. But if you want to give your recordings a kick in the butt, *play live.*

I've cultivated a studio tan for years, but throughout have kept an active playing schedule. The goal hasn't necessarily been to return to being a full-time touring musician; been there, done that. But playing live *never* gets old for me, and, more importantly, the live experience is essential if you want your music to shine in the studio. Here's why.

First, if playing for an audience is fresh in your mind when you're recording, that "live vibe" will carry over. Second, you'll get feedback that near-field monitors will *never* provide — an audience will let you know in no uncertain terms what works and what doesn't. (I always thought it was crazy for groups to cut 40 songs in the studio, then whittle that down to 10 or 15 for a CD. Why not just play those 40 songs to a live audience, find out what gets the best response, then go cut the best of the bunch?) Third, you're forced to pay attention to every element of your *playing,* because there are no second takes live.

I'm currently performing with EV2, a hard rock "power duo" with Brian Hardgroove from Public Enemy on drums, and me playing Gibson's Digital Les Paul guitar (I play bass, rhythm, and lead parts simultaneously by exploiting the multiple outs and running them through various effects pedals). There's no safety net, no backing tracks, and *every note* has to have maximum impact — or we're hosed. This is a *great* antidote for "studio laziness," where it's so easy to add another track to try and make a bigger sound, rather than take the part you have and make it *big.*

What started out as a one-off gig for a three-day festival has taken on a life of its own, and, yes, we'll be going into the studio before long. But when we do, we'll strive to bring that powerful, live vibe into the process. Recording used to be about capturing the magic of a live performance — and that's still a wonderful approach. Just remember that if the magic's not there in the first place, no amount of cutting and pasting will compensate.

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September 2007

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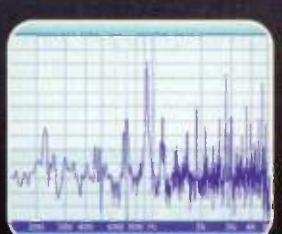

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SOUNDING BOARD

MORE METAL!

Hey guys,

How about a Session File on the new Dimmu Borgir [In Sorte Diaboli]? Frederik Nordstrom produced it and it sounds amazing. Personally, I'd love to hear how he got some of those hellish sounds.

Thank you for your time,

Braden Mitchell (via email)

Matt Harper responds:

Ask and ye shall receive, my friend. Though you'll see in this issue that we no longer have Session File *per se*, you'll also notice that we are still giving coverage to specific recording sessions, though in a bigger, and better, way than ever before. We have something coming up just for you, so hold tight and you'll get your answers shortly.

LOVE IT!

I just wanted to tell you all that I'm particularly enjoying the July 2007 issue — the drum software roundup, the documentation and ergonomics articles, etc.

I'm only about halfway through, but I may wind up reading this issue from cover to cover.

Good work!

Best,

Geoff Grace (via www.eqmag.com forums

LOVE IT! LOVE IT!

Thanks so much for the July feature on drum software ["Robot Drummer Roundup"]. As a guitarist that can't find a drummer to save his life and can never get my old drum machines to do what I want it to do, I found the article very helpful. Now my only problem is trying to pick which one I want to buy (it looks like Groove Agent 3 — whenever it ships!)

Michaele (via email)

OOPS! WE SORRY!

Clint Black's home studio — pictured on page 42 of the July *EQ* ["Ergonomics For Engineering Autonomy: Seven Studio Solutions For The Self"] — looks amazingly like *my* studio. In fact, it *is* my studio. Todd Beeton did in fact design and build my studio furniture, which includes my keyboard workstation and a custom console for my DM 2000 (not 200, as the caption states). He did fabulous work, as I'm sure he did on Clint Black's studio as well. You can see more pictures of the studio at www.veritemusic.com, and you can find out more about me and the work I do at www.sheldonmirowitz.com.

I'm a long time *EQ* reader, and have noticed errata before in the magazine — but I've never been the object of it. I'd appreciate anything you can do to set the record straight.

By the way, it's a good magazine and I read it monthly.

Best,

Sheldon Mirowitz (via email)

Matt Harper responds:

Thank you for bringing this issue to our attention, so that we could bring it to the attention of our readers. We devote a lot of effort to insure accuracy, but from time to time a mistake will slip through. And when one does, we set the record straight as soon as possible — as we are doing here. So, on behalf of *EQ*, I not only apologize for this unfortunate error, but also thank you for your kind words regarding the magazine.

Readers: An upcoming Room with a VU will showcase Mr. Mirowitz's wonderfully designed home studio (as done by Rob Rosati of Rosati Acoustics). We think he has a great little place, and we dig his soundtrack work as well.

STRIKE OUT?

The Virtual Drummer shootout came along at just the right time for me, it was very helpful and I appreciate that you went into quite a bit of detail. But as someone who works in a lot of Pro Tools studios, I wonder why you didn't include Strike. From what I've seen, it's a very capable program that fits into your "robot drummer" category.

And while you're listening, the review of Ueberschall's *Electro ID* was great. I had no idea this type of product existed. I wish you did more on electronic-oriented products and bands.

Michelle Jennings (via email)

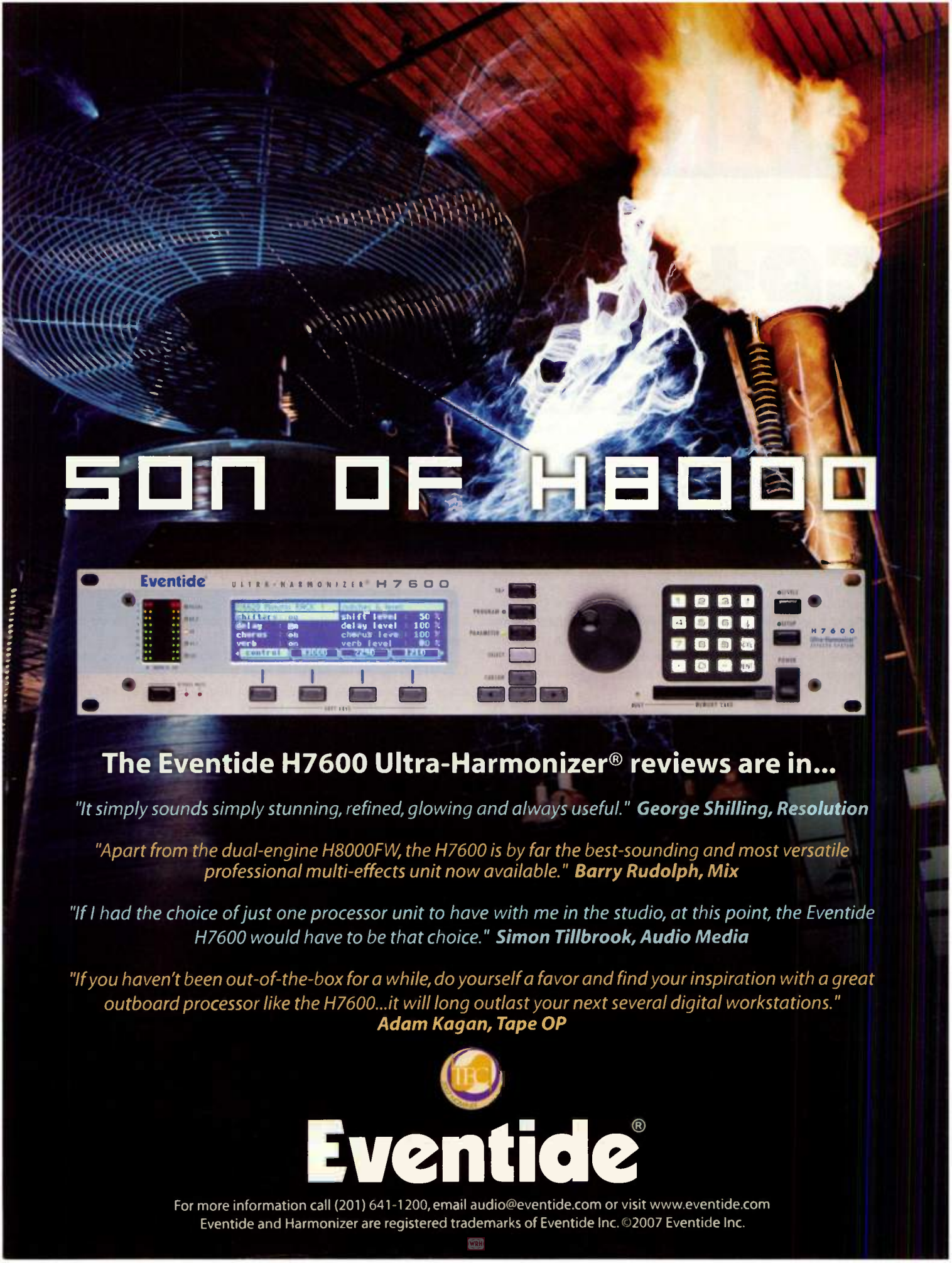
Craig Anderton responds:

Although not stated explicitly in the article, we wanted to cover programs that worked with a wide variety of host programs; for example, we almost didn't cover Cakewalk's Session Drummer 2 until we realized it could open in programs other than Sonar. However, we do have a piece on Strike scheduled for an upcoming issue. (Also keep an eye out for Phil O'Keefe's upcoming review of Velvet, Digi's electric piano emulation software.)

As to electronic-oriented material, you'll definitely want to check out the October issue, as its theme is electronica.

Got something to say? Questions, comments, concerns? Head on over to www.eqmag.com, and drop us a line on our Letters to the Editor forum, send us an email at eqeditor@musicplayer.com, or drop us a line c/o EQ magazine, 1111 Bayhill Dr. Suite 125, San Bruno, CA 94066 for inclusion on the Sounding Board.

Note: Letters may be edited for length and/or clarity. Direct correspondence by EQ editorial is not guaranteed. All submissions become the property of EQ magazine and can be published in any medium.



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PUNCH IN

by Lily Moayeri

Get Cape. Wear

Sam Duckworth on *The Chronicles of a Bohemian Teenager*

In an attempt to bypass the inevitable emo-folk tags if he performed under his given name, British crooner Sam Duckworth chose the outrageously silly Get Cape. Wear Cape. Fly. (lifted from the first three levels of a classic Batman videogame) as the banner under which to present his music. It doesn't really work, as Duckworth's sparse acoustic-guitar strumming and introspective declarations absolutely reference Elliot Smith, Damien Rice, and the other kings of the emo-tinged singer/songwriter universe. And yet, the tracking of his debut release, *The Chronicles Of A Bohemian Teenager*, indeed represented a superhero-like quest for truth, justice, and the perfect guitar and vocal sounds.

Tracking *Chronicles* on a MacBook Pro with the help of drummer Andrew Theakstone and producer Adam Menczykowski, Duckworth and company transported their portable studio setup and an armful of gobos from their practice space to various U.K. locations. They were looking for a large room that would not only allow Theakstone's drums to reverberate naturally, but also let Menczykowski position Duckworth and Theakstone in the same space — separated by a line of gobos — that would enable the pair to record together with minimal bleed from the drums into the vocal mic.

Though he experimented with his trusty live-performance microphone — a Shure Beta 58A — Duckworth opted to record his vocals with the sE Electronics Gemini II tube condenser because he felt it delivered a "breathier quality." The vocal signal was routed through a Neve 8081 mic preamp, and was compressed heavily via an Avalon 727 compressor/EQ. Duckworth also incorporates spoken-word segments into his music, and, for these, Menczykowski put a Shure SM7B in front of the vocalist.

"It really picked up the quieter, more nuanced characteristics of my speaking voice," says Duckworth.

Duckworth banished microphones entirely from the recording of his acoustic guitar parts — performed on either an Avalon Brazilian Rosewood 800 jumbo or an Avalon Concert S series — opting instead to outfit both instruments with L.R. Baggs M1 pickups, and send the signals through an L.R. Baggs Para Acoustic D.I. to MOTU's 828mkII computer-audio interface and directly into Apple Logic Pro 7.

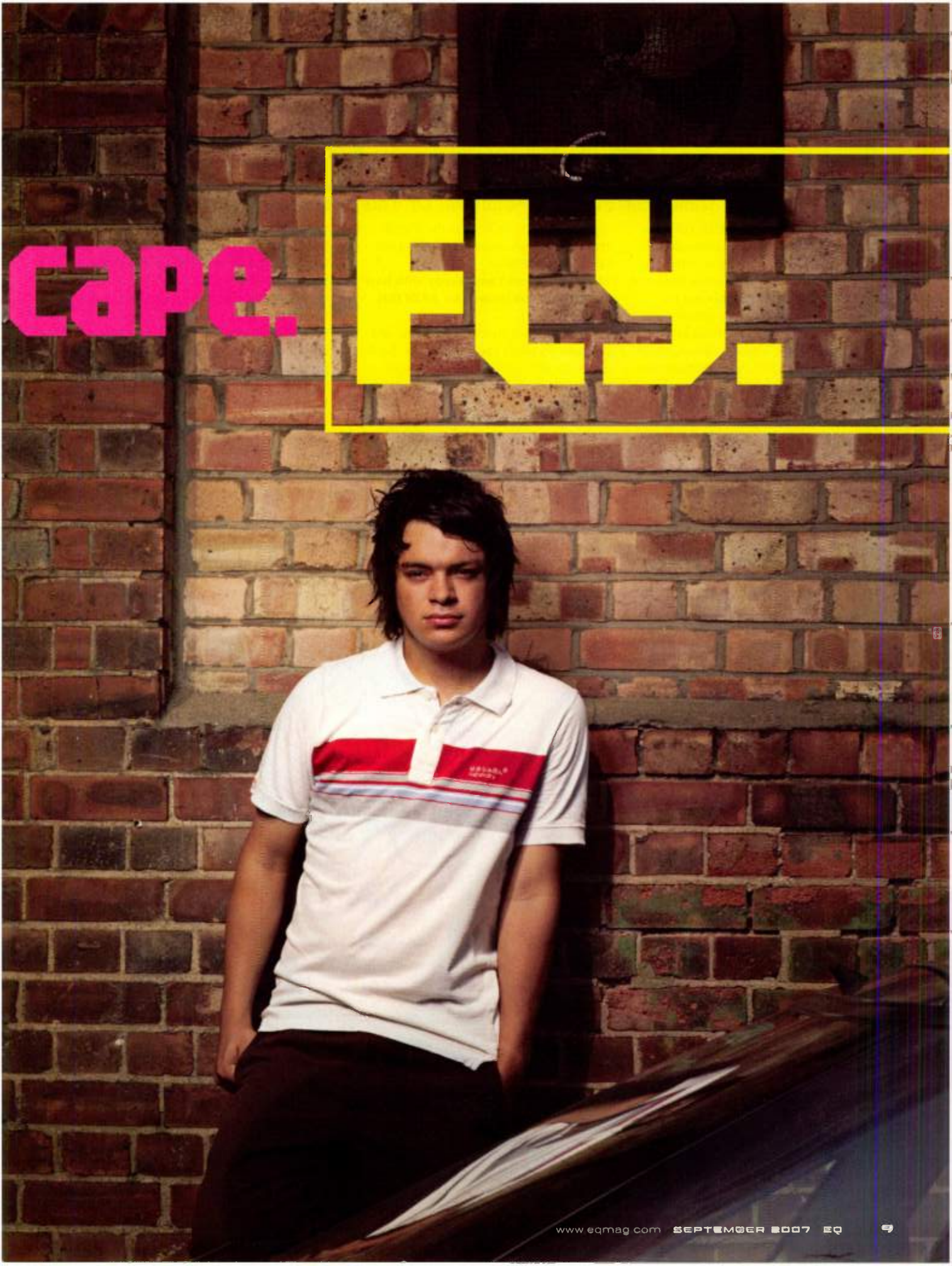
"I'll write a song and straightaway record it into Logic," explains Duckworth, "but I'm always writing with the complete instrumental arrangement in mind. I tend to build the other instruments around the song as I'm mixing the basic demo tracks."

The majority of the "other" instruments are courtesy of Vienna Symphonic Library's Solo Strings and Chamber Strings libraries, as well as cello and violin recordings tracked by Menczykowski with a pair of Røde NT2 condensers positioned to capture a stereo perspective. Duckworth then arranged the sounds in Logic's EXS24 software sampler, using a custom plate reverb or Logic's Space Designer plug-in to build ambiences that matched the room sounds recorded during the vocal, guitar, and drum sessions.

The sound design wasn't done when *Chronicles* was mixed, however, as Duckworth wanted to recreate the album's arrangements on stage — an incredible difficulty, given that he performs only with Theakstone and cornet player Mike Glenister. The solution was to arm Duckworth with a RADAR 24 system loaded with ten stereo tracks of instrumentation recorded during the *Chronicles* sessions, and two click tracks. This was the only logical option for an act that can't afford to haul a 24-piece orchestra along to shows.

"Although the RADAR runs click tracks into my in-ear monitors to help me keep time with the music, everything else just feels like I'm playing with a band," says Duckworth. "Unfortunately, the system doesn't allow a lot of improvisation — it's pretty much a glorified way of playing to a backing track — but it does give us a much bigger soundscape on stage. Working with an experienced producer in a nice studio environment always enriches your recordings, but I never thought the process would upgrade the sound of my live show, as well!" EQ

Duckworth banished microphones entirely from the recording of his acoustic guitar parts.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PUNCH IN

Ben + Vesper

Daniel Smith Chats About *All Of This Could Kill You!*

by Shane Mehling

Daniel Smith is regarded as the king of indie-pop-gospel music (as if he has many competitors in the field), and is revered in certain circles for heading the quirky collective Danielson Famile. Ben + Vesper have a dark and fractured take on indie folk-pop. Somehow, a collaboration was born, and Smith was asked to record the latest Ben + Vesper release, *All Of This Could Kill You!* in his makeshift basement studio in Clarksboro, New Jersey. It was a good move, as Smith brought the music of the husband and wife duo to life with lush tones, stark drums, and a pop sensibility interwoven with beautiful oddities.

What's the setup down in your basement?

I call it the New Jerusalem Recreation Room. It's half my parent's basement, actually. We had to put my mom's sewing machine on rubber gaskets so the vibrations down here don't bother her work! I'm using an Allen & Heath PA20-CP mixer, Apple Logic Pro 7, and an Ampex ATR-124 analog 2" 24-track. I use the tape machine to record tracks as live as possible, then I mix through the Allen & Heath, and, finally, record everything into Logic at 24-bit/96kHz.

I hear you weren't very happy with how the drums were tracked for *All Of This Could Kill You!*

We didn't record the drums until the end, because we didn't have a drummer. So we just set a click track for Ben and Vesper to play to. I'd never done that before, and I don't ever want to do it again. It's the worst way to work. We'd do things like record someone slapping an acoustic guitar just to get something rhythmic going so there would be some live energy in the vocal performances. Finally, we were able to get my brother, Dave, to come in and track drum parts to the already-recorded arrangements. Of course, we had the luxury of letting him hear the completed songs so he could write to them, but it was far from ideal.

What was the system for tracking drums last?

Well, there was a compromise, because I like the heart and body of songs to be live, but I wasn't capturing live performances. Ben and Vesper didn't show up ready to record live. So we started with Ben's instruments and voice, and we moved on to Vesper and her harmonies. Then, we kept adding elements throughout the recording — piano, accordion, banjo, and Sufjan Stevens' backing vocals.

What about the final mix?

I would start the mix with just the drums, building the other instruments up around them until we decided things were sounding too full — at which point, we started pulling instruments back, or out completely, until the mix made sense. In the end, it's always about the songs — especially with an act like Ben + Vesper, which is basically two solo artists being joined on record by "a band." All the extra instrumentation is just there to support the bare songs. EQ

Photo: Helen Michelsen

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Whitey White and Peanut Baines

KAISER

By Lily Moayeri

Britain's Kaiser Chiefs are a very big deal. The band's 2005 release, *Employment*, sold three million copies, swept the Brit and NME awards, and took home the Ivor Novello Award for songwriting. But the quintet — vocalist Ricky Wilson, guitarist Andrew "Whitey" White, bassist Simon Rix, keyboardist Nick "Peanut" Baines, and drummer Nick Hodgson — don't exactly record like some posh and privileged, hit-making sultans.

In fact, the Chiefs' latest album, *Yours Truly, Angry Mob*, was completed during a fervent six-week residency at Trevor Horn's Hood End Manor in Oxfordshire, before being mixed by producer Stephen Street and Cenzo Townshend at London's Olympic Studios. And pre-production sessions weren't held at some idyllic country estate, but at the same crappy rehearsal room — outfitted with a small P.A. system and a hand-built drum riser — that the band has been working in for nearly a decade. Song demos aren't painstakingly crafted on a fully loaded digital workstation, either. They're captured with a handheld Olympus DS-3300 digital voice recorder as the band plays through the songs live.

"We feel that going to a studio to record demos is a waste of time," says Baines. "I mean, there's no point to recording something twice."

The *modus operandi* for the Chiefs is to get material written tightly before it's even recorded on something as simple as the DS-3300. In the studio, if a song isn't working after a few attempts at recording it, the band scraps it, and moves on. The idea is to get things done quickly, not waste time, and ensure that as much energy gets into the performances as possible.

The Kaiser Chiefs even manage to pretty much evade the mind-numbing time suck of crafting and recording guitar sounds. Although White used a number of guitars during the *Yours Truly* sessions — including a '72 Ibanez copy of a Les Paul, an Epiphone Casino, and a '68 Gibson 12-string acoustic — the crux of the guitar-tracking process was typified by the

CHIEFS

Pictured left to right: Simon Rix, Nick Hodgson, Andrew "Whitey" White, Ricky Wilson, Nick "Peanut" Baines

quick, minimalist approach used for "Thank You Very Much."

"As is often the case with good guitar sounds, this song was done with a '74 Gibson Les Paul Deluxe plugged into an old Vox AC30 that was cranked up as loud as it would go," says White. "No pedals. No effects. It's just the natural gain of the amp. In the bridge section of the song, when a 'guitar duel' starts, all we did to make a distinction between the sounds of the two guitar parts was to use the Les Paul Deluxe and a three-pickup Les Paul Custom — both plugged into the same AC30. We did pan them opposite each other in the mix, but, otherwise, the whole procedure was quite simple."

The quick-and-simple method was taken to surprising levels — at least for a popular international band — when the Kaiser Chiefs released a self-recorded single of "Oh My God" in 2004. Basically, this was an early version of what appeared fully produced on *Employment*, and the recording process was not pretty.

"We borrowed a bunch of Shure SM57s and SM58s from a venue we used to play in, and we used those mics to record everything except the vocals — even the drums," remembers Baines. "We used an AKG C1000 condenser running into a Focusrite TrakMaster Pro preamp for the vocal tracks, and we recorded everything into Roland VS-880 digital workstation. That's all we needed! To mix the song, we transferred the VS tracks into Apple Logic Pro using a SCSI connection. But even though we were mixing with professional software, we still did things like playing the guitar tracks through the monitors, miking the speakers with SM57s, and running the signal through a Boss DD-3 Digital Delay and into the VS-880, before transferring everything back into Logic. The DD-3 delays were simply more appropriate for our guitar sounds than what we could get with plug-ins. We wanted something more analog — more *raw*. More often than not, you don't have to be fancy to get the sounds you need."

TOOL BOX

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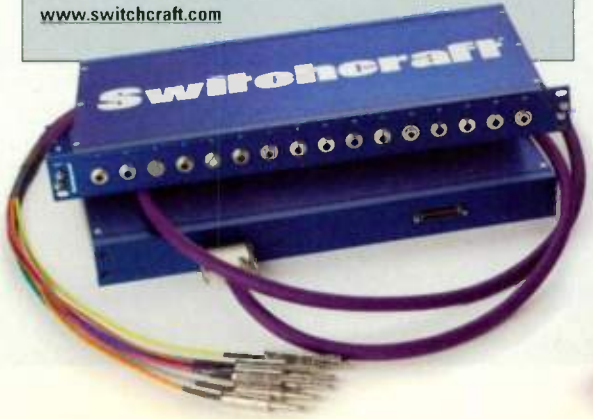

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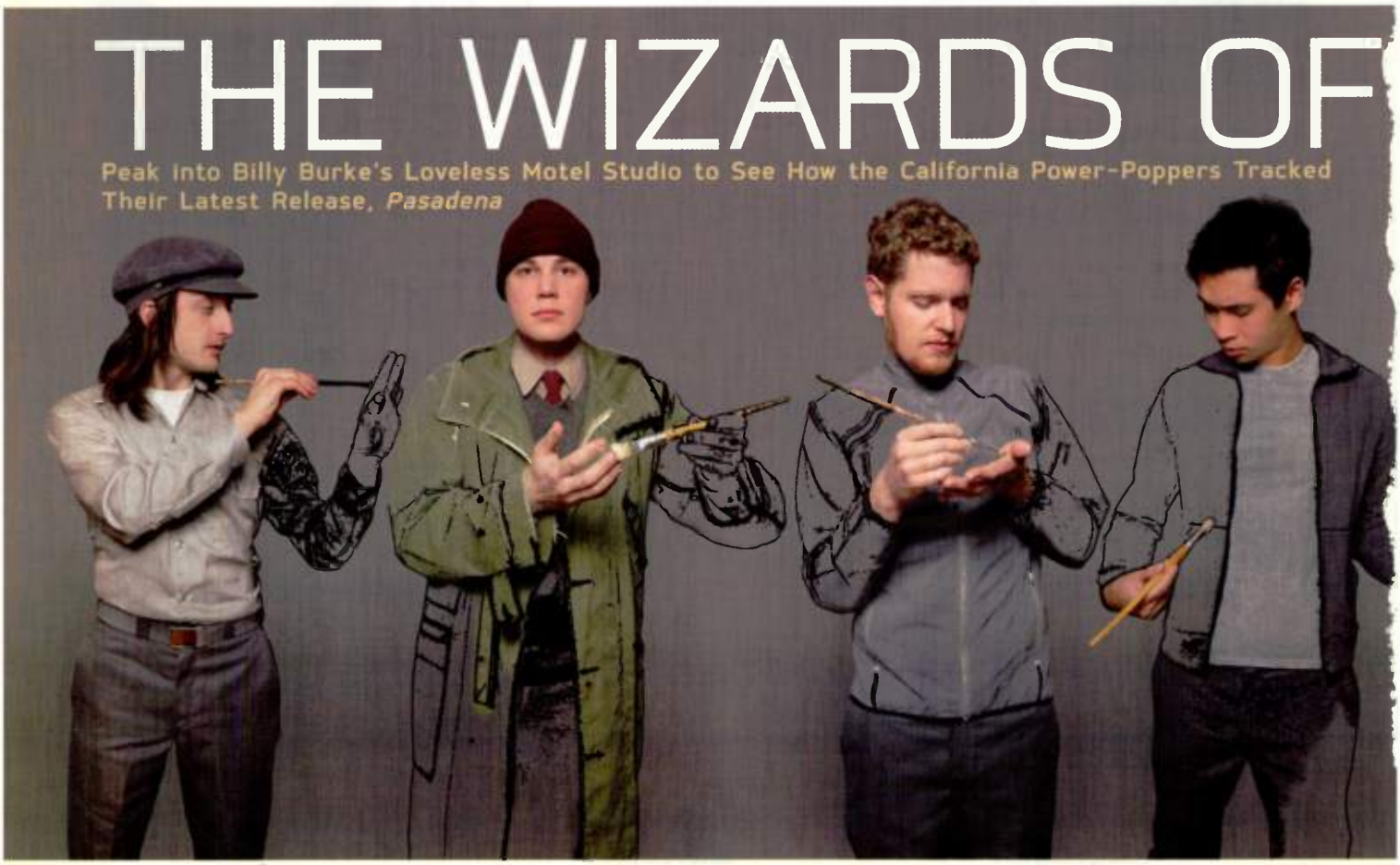
THE WIZARDS OF

Peak Into Billy Burke's Loveless Motel Studio to See How the California Power-Poppers Tracked Their Latest Release, *Pasadena*



FOR A RELATIVELY YOUNG band, Ozma has enjoyed a rollercoaster of a career. Over the course of a decade, the group has released three albums (mostly self-produced), swapped out a keyboardist, were handpicked by Rivers Cuomo to be Weezer's opening act at the height of their resurgence in 2001, and then officially broke up in 2004, before reuniting with a new drummer in 2006. Their sound, a heavy mix of power pop and synth-rich new wave, caught the ears of indie and mainstream critics who praised their ability to be infectious and adventurous in a genre littered with Top 40 sound-alikes. During their two-year hiatus, guitarists Ryen Slegr and Jose Galvez formed the band Yes Dear, forging a close relationship with producer Billy Burke at his Loveless Motel studio just outside Pasadena, California. So when it came time for the reformed Ozma to hit the studio to record its latest release, *Pasadena*, Burke was more than happy to man the boards.

Burke's studio is haven for vintage gear, including a Wurlitzer 720a and an extremely rare solid-state Wurlitzer 206a, both previously owned by Daniel Lanois. His core recording setup is simple: a TASCAM DM-24 digital mixer and a PC running Sonar 6 Producer Edition DAW software. However, Burke also employs a Behringer BCR2000 USB/MIDI controller for simple, more tactile control of his TC Electronic PowerCore, Sony Oxford EQ, and Universal Audio UAD-1 Pultec-Pro EQ plug-ins, rather than having to use mouse-clicks to tweak software settings.

"My studio is more like a tape-based recording environment," he explains. "It's not that one piece of software takes care of everything for me. I've tried to find software and hardware that do particular jobs really well — such as Sonar and the DM-24 — then get them all to integrate together very smoothly."

Due to a lengthy pre-production process with *Pasadena* co-producer Greg Doyle, Ozma had demos for close to 16 songs. More than just scratch sessions, these recordings were vital in creating the album's cohesive sound, and some demo tracks actually made it on the album. On "Barriers," for example, a transcendent demo vocal was transferred to Sonar, and defined as a Groove Clip (an audio file that can be time and pitch-stretched), so it could be edited and used in the final mix. In the case of "I Wonder," *Pasadena*'s only acoustic track, the original demo take ended up on the record.

"Why try to recreate an original idea that was good to begin with?" says Burke.

In the studio, Slegr played his 1967 Epiphone Wilshire through either a 1979 Marshall JMP head or a Matchless DC-30. A vintage, alien-green Supro amp was used heavily on "Lunchbreak (Cobra's Theme)." Galvez's main rig was a sunburst '63 Gibson ES-355 and a Fender Super Reverb. When the guitarists plugged into vintage amps without master volume controls — such as a Fender Deluxe and a Vox AC30 — Burke used THD Hot Plates to attenuate the output levels so Slegr and Galvez could crank up and achieve maximum crunch without splitting their eardrums.

Ozma is the first to admit its affinity for classic new-wave pop, and the pairing of Slegr's lead guitar with Star Wick's keyboard lines recalls the magical dynamic between the Cars' Elliot Easton and Greg Hawkes. They often trade call-and-response solos (such as on "No One Needs To Know"), or work together to

create layered textures ("Fight The Darkness"). Wick's main synth, the Nord Lead 3, usually ran through a Brent Averill Enterprises 1272 mic preamp to compress the signal mildly, and enhance its already thick and fat sound. In a true '80s homage, Wick and Slegr used the Nord's flexible sound engine to recreate some of their favorite vintage patches, such as the Casio CT-700's "Power Lead," and various sounds from an old Roland Juno-D and the Moog/Radio Shack MG-1.

"We really tried to get a hand-in-glove effect with the guitar and keyboard parts," says Burke. "We really tried to make sure the parts complemented each other, and found their own places in the mix. For example, it's a bad idea if you have a guitar part that's really crispy and crackly, and you also have a keyboard part in a similar range, because they're going to fight against each other."

Ozma drummer Kenn Shane — using Burke's 1966 Ludwig Champagne Sparkle five-piece drum kit — threw down a little bit of everything on *Pasadena*, from furious kick-drum pulsations on "Incarnation Blues," to syncopated, seemingly random punches on "Motorology 3:39." To record Shane's grooves, an AKG D12 was placed in front of the kick drum at the 5 o'clock position, and about 3" off center from the beater. The top of the snare was miked with a Shure SM57 positioned just off the rim, and a Sennheiser e607 was used as an under-snare mic. Toms were recorded with Sennheiser MD409s, AKG C414 TL/2s were employed as overheads, and a pre-WWII RCA Varacoustic ribbon microphone was set up in various spots through the studio to capture room sounds.

"The RCA doesn't hear a lot of high end or low end, but it does provide a really smooth and natural midrange," says Burke. "I ran it through a Brent Averill Enterprises 1272 mic preamp, because the 1272 has a lot of gain, and that ribbon mic needs a lot of gas."

Other mic preamps included a Neve Portico 5012 Duo that was paired with the kick drum and top snare mics, a Sytek MPX-4A for the under-snare mic, and Brent Averill 312As for the toms and overheads.

After a few drum takes were recorded for a particular track, Burke would select a handful of the best performances, burn them to CD, and then pass them onto Shane and vocalist/bassist Daniel Brummel for review. Once the drum parts were approved, Burke would comp the performances back together in the studio, ensuring that only the best grooves and fills made the cut.

Making sure Brummel's melodic bass lines didn't get lost in the mix was a big concern, so the bassist crafted a clean, punchy tone by plugging his 1966 Fender Jazz Bass into an Ampeg SVT-4PRO. However, to get the fuzzed-out low end in "Fight The Darkness" and "Incarnation Blues," Burke had Brummel plug into two guitar amps: a THD UniValve and a Fender Dual Showman.

The recording process for *Pasadena* was both creatively energized and complicated by the fact that the songs were not worked on straight through from basic tracks to overdubs.

"No songs were done from start to finish," admits Burke. "We'd work on multiple songs simultaneously, and because everything happened in a non-linear way, things kept changing. This method, of course, has its good and bad points. I mean, we started off with a 20-day booking, and it turned into five months!"

OZMA

by Richard Thomas

Pictured left to right: Kenn Shane, Ryan Slegr, Daniel Brummel, Jose Galvez, Star Wick.

Photo: Sterling Andrews

HOME COOKING

Here are some tips for emulating — or at least getting close to — some of Ozma's sounds on *Pasadena* in your home studio. Remember, even if you don't nail a sound exactly, the process may trigger the discovery of tones that are uniquely yours.

Get Mellow. Room sounds — whether for guitars, drums, or vocals — don't always have to shimmer. Burke used a vintage ribbon mic to capture "smooth and natural midrange" on Shane's drums. Happily, there's no "sound rule" that requires a '40s-era mic to track natural mids. In fact, modern ribbons are fairly affordable these days — **Nady's RSM-2** streets for $199, the **Electro-Harmonix EH-R1** is $299, and other options abound — and it never hurts to have more firepower in your mic collection. However if new gear isn't in your immediate budget, use a dynamic mic, rather than the often-preferred condenser as your room mic. Then, take care to cut the punchy frequencies between 1kHz to 5kHz by at least 3dB, and you should have a smooth-as-silk midrange perspective that could be balanced with the close-mics to simulate old-school ambience.

Turn down. Jimmy Page recorded some classic **Led Zeppelin** tracks with cranked-up small amps that didn't blow down the studio walls, but still sounded HUGE. Burke used **THD Hot Plates** to tame loud vintage amps, but you can capture much the same impact by copping Page's trick, or by close-miking a master-volume amp, and then sneaking in some reverb ever-so-subtly in the background to simulate an amp at full roar in a medium-sized studio. The reverb trick also works for guitar plug-ins and hardware modeling tools, such as the **Line 6 Pod**.

Find your place. Burke took care to ensure that similar frequency ranges didn't fight each other in the Ozma mixes. It's a good plan, because sonic clashes and crashes are often reasons why a home-studio mix won't measure up to professional releases. Don't get attached to "great" individual sounds that blatantly destroy the sonic harmony of your mix as a whole. Start by viciously protecting each element's turf — such as cutting the mids on the guitars if you want a spiky bass part to pop — and then assess your frequency spectrum to determine which instruments can live close together, and which need to live in different cities, so to speak. If anything sounds too muddy or too indistinct, you're probably supporting a tonal marriage that should rapidly end in divorce. —*Michael Molenda*

NO COMPROMISE!

PORCUPINE TREE'S STEVE WILSON REVEALS THE STUDIO WIZARDRY BEHIND HIS BAND'S PROG-ROCK EPICS

Pictured left to right: Gavin Harrison, Richard Barbieri, Steven Wilson, Colin Edwin.

By John Payne

One might be forgiven for merely getting one's rocks off on the sheer power and beauty of Porcupine Tree's *Fear of a Blank Planet*. As mixed and mastered by the band's main man Steven Wilson, this is a truly thrilling audio experience of searing, yet lushly opiated, metal-tinged epics. The album addresses the issue of attention-deficit disorder with a demanding and complex set of compositions whose ornately drawn and consummately played content requires the listener to pay attention.

"I grew up listening to music from the golden era of album music — from the late '60s through the late '70s — and that was an era in which the whole nature of rock music was elevated to the level of an art form," says Wilson. "The musicians gave credit to the intelligence of their listeners to be able to absorb large-scale pieces of music, with both horizontal and vertical complexity."

"I GREW UP LISTENING TO MUSIC FROM THE GOLDEN ERA OF ALBUM MUSIC – FROM THE LATE '60S THROUGH THE LATE '70S – AND THAT WAS AN ERA IN WHICH THE WHOLE NATURE OF ROCK MUSIC WAS ELEVATED TO THE LEVEL OF AN ART FORM."

This is classic Porcupine Tree stuff, their windswept, grandiose, and often melancholy-drenched sound channeled though artful reference to the darkly airy expanses of Pink Floyd — a primary influence on the young Steven Wilson. Porcupine Tree is, however, far more aligned with the bronto-heavy wallop (and Middle Eastern fantasies) of Led Zeppelin in its aim at putting some mystical beauty in the beast. The band's raging rhythm section of drummer Gavin Harrison and bassist Colin Edwin, and its mastery of the ultimate riff, is DNA-derived equally from both Deep Purple and the speedier strands of punk rock. In Wilson and keyboardist Richard Barbieri's Mellotron samples, and in Wilson's sweeping guitar and synth textures and minor harmonies, the ghost of King Crimson hovers darkly above. (The presence of guest Robert Fripp's soundscapes on the track "Way Out of Here" is a tip of the hat to Crimson, as well as an intriguing musical element.)

"The people who were very important to me," Wilson says, "were kind of auteurs — people, like Brian Wilson and John Lennon and Paul McCartney, who not only wrote songs, but who had this vision to create amazing pieces of art."

Fear of a Blank Planet was recorded at the individual members' home studios in England. Wilson — a studio wiz who can claim major responsibility for the audio brilliance of Sweden's black-metal artisans Opeth on their last few albums — currently divides his time between London and Tel Aviv, where he collaborates with singer-songwriter Aviv Geffen on their atmospheric-pop-oriented Blackfield project.

"For the last few Porcupine Tree albums, we've been gradually moving toward a situation where we were pretty much self-sufficient," says Wilson, "and we'd used the record company advances to invest in very high-quality recording software, microphones, and all that kind of stuff. So now we can do an album at our own pace."

"THE WHOLE THING ABOUT A PORCUPINE TREE SONG IS THAT IT'S ALL ABOUT DYNAMICS AND LAYERING."

That considered pace has allowed Porcupine Tree to come up with music of both depth and a kind of sonic height, as exemplified by the title track — whose gently, but forebodingly plucked acoustic guitars meet up with crunching drums, and then intense electric guitars that introduce the entrance of a "telephoned" voice. The point is that it's all coming at you in stages, building dramatic tension.

As Wilson tells it, that gradual thickening of sound is a lot more than just a matter of more tracking.

Steven Wilson hard at work during the *Fear of a Blank Planet* sessions.

"The whole thing about a Porcupine Tree song is that it's all about dynamics and layering," explains Wilson. "The music is not that vertically complex. Most of the parts — and the way they relate to each other — are quite simple, but what is complicated is the way the tracks evolve horizontally, the way the instruments come in and drop out. Sounds are constantly being added and taken away. That's the production approach, and that is what takes all the time. There's always the sense that even though the song may be seven or eight minutes long, there's always a new gag just around the corner. There's always something new just about to be added to the mixture, to keep that sense of evolution, and that sense of dynamics all the way to the end of the track."

Working initially from a laptop, Wilson lays down riffs and ideas, and begins the process of shuffling them in different combinations to establish a general shape and direction for his elaborately schemed tracks. He reveals that the 17-minute "Anesthetize," which features an emotional solo by Rush guitarist Alex Lifeson, took about a month for him to find the right structure and dynamic flow that made the most sense for the track.

"It's almost like putting a jigsaw puzzle together," he says. "You have all the pieces, and there's usually only one way that makes perfect sense, but you have to try and find that one way. That takes time."

For his demos, Wilson relies on his trusty Gibson Les Paul for a basic sound, or he might employ one of his Paul Reed Smith Custom 22 and Modern Eagle guitars — all of which are plugged straight into a Line 6 Pod.

"I like to work quickly," he says. "When I'm coming up with ideas, I don't want to be weighed down with issues of creating guitar tones, so this is a very intuitive way to come up with the kind of sound I need. The Pod was invaluable to me on the last few records."

Steven Wilson (left) and Richard Barbieri (right) mixing in Wilson's home studio.

Although Wilson tends to include many of the guitar tones recorded at the demo stage on an album's final mixes ("I like the Pod sounds"), he also mics actual amps while doing overdubs to create punch, clarity, and sonic diversity.

"When you listen to the record, you can hear there's an incredible range of different textures — particularly from the guitar," he says. "A lot of the more heavily overdriven metal riffs are all done through real amps."

Bass parts are similarly treated. Originally recorded through a direct box, during mixdown, Wilson treats a cloned bass track with Line 6's **Amp Farm** plug-in to produce some grit, and then blends that sound with the clean, DI bass tone.

"You've got the best of both worlds that way, and you get *control* over the best of both worlds," he says. "You're able to change the relationship between the DI sound and the modeled amp sound as the track goes on. When it's a heavier section, you push up the amp sound, and when you want more warmth, you push the DI sound up. Sometimes, I even put the two bass tracks out of phase."

NO COMPROMISE!

At the editing stage, Porcupine Tree's majestic sound is handled entirely with the TDM version of Logic Audio that interfaces with Pro Tools. Plug-ins are run on Pro Tools, so that Logic can handle editing functions without an added load on processing power. For plug-ins, Wilson favors the Focusrite d2/d3 EQ and compression plug-ins, and makes heavy use of Line 6's Echo Farm delay simulator.

"I also use the Mellotron library that comes with the Logic Audio EXS24 sampler," he adds. "We had a real Mellotron for a couple of the records, but, to be honest, the sampler became so good that we didn't bother with the real thing, because you just cannot tell the difference between the Logic Audio library and an actual Mellotron."

A real orchestra makes an especially gorgeous appearance on "My Ashes" and "Sleep Together." For these tracks, Wilson employed the London Session Orchestra — 24 of the best players in London, who do numerous film and TV sessions, and who are used to dealing with headphones and playing to click tracks. Wilson handed his ideas — initially sketched out on his Logic sampler — to Dave Stewart, who crafted the final arrangements. (Note that this is the Dave Stewart of great early '70s progressive/jazz/rock bands such as Hatfield and the North, Egg, National Health, and Bruford — *i.e., The Only Dave Stewart Who Matters.*)

The visually and sonically high-tech advances made by Porcupine Tree in the last few years can also be witnessed on the recent *Arriving Somewhere* DVD — a limited-edition set licensed to Snapper Music — that puts on vivid display how Porcupine Tree rises above the vast prog-metal hordes.

"The conscious decision is not to water down the music," says Wilson. "If I'm completely unconscious about the music I'm making, then I can be sure it's the kind of music I would make anyway. If I start thinking about it, and worrying about what the record company expects, what the fans expect, what the radio stations expect, and what the media expects, then that's when the composition process becomes conscious, and that's also when the music starts to become compromised." EQ

HOME COOKING

Steven Wilson explicitly and fearlessly follows his muse, and that's a pretty essential strategy if you have a firm belief in your creativity, and want to produce unique and individual recordings. Here are some quick tips for inserting the "Porcupine Tree Method" into your own home-studio explorations.

Screw the haters. Everyone will have an opinion about your work. Wilson doesn't care about the fleeting, frustrating, and often confusing input of the public. He crafts music for himself, and has faith that an audience will follow. Remember that approach when you're all alone in your studio with only yourself — and perhaps your band or a few collaborators — to answer to. Forget about the outside world when you're tracking. Commerce doesn't matter. Record companies don't matter. It's all about making tracks that get you all kinds of giddy and excited about *your* project. You have to be honest with yourself, of course; if something sucks, you should be able to admit it and move on, rather than assess the part as being "almost cool," or whatever other mental gymnastics people unleash to rationalize tracks that should have been pummeled into oblivion with a Howitzer. Follow your instincts, be extremely self-critical, and you'll be well on the way to making thrilling and interesting recordings.

Seek texture. Wilson creates guitar textures by layering real amp sounds over a Line 6 Pod's digital amp models, but if you're not in a position to mic amps in your home studio, you can still craft cool textures. The simple trick is to smack your guitar processor around. Want to emulate what Wilson calls the "punch" of a real amp? Then add a clean, Fender-style amp model to your guitar layers, and aggressively boost the midrange EQ. Dialing in a slap-reverb effect will intensify the impact (just be sure to leave any distorted tones completely dry so that the layers don't get washed out with reverb). One of the easiest and hippest maneuvers is to simply plug your guitar into a direct box, and route it to your recording medium. This guitar-direct-to-recorder sound is a true analog texture — albeit a *clean* analog texture — that can add density, impact, or girth to digital models, depending on how you EQ it.

Clean tracks = myriad options. Wilson records a clean, direct bass sound, and then clones the bass to another track where he treats it with an Amp Farm plug-in to add some "amp" sizzle. Then, he blends the two sounds to taste. Brilliant! If you're working with a digital workstation, get in the habit of recording clean guitar, bass, and keyboard tracks (alongside processed tracks, if desired). If, during the mixdown, your idea of the perfect sound changes, then you're not married to what is already down. You can simply select the "clean" track, process it as you wish, and use the new track in the mix — or even blend it with the original track. It's all about keeping your options open.

Mix it up. Porcupine Tree songs always have surprises for the listener, because Wilson evolves the track by adding parts. To foist a few aural shockers yourself, don't view your composition as a strict A-B-A-B-C-A-B structure with all A sections maintaining the same instrumentation and parts, all B sections the same, and so on. Think about dropping a cool guitar lick only into the second verse, never to be heard again. Mix in different reverbs or modulation effects to intensify certain sections — even go as far as to, say, dramatically increase the reverb level on a vocal as the voice builds to a crescendo. Dropping out parts briefly is another cool way to build dynamic interest and keep listeners on their toes.

— *Michael Molenda*

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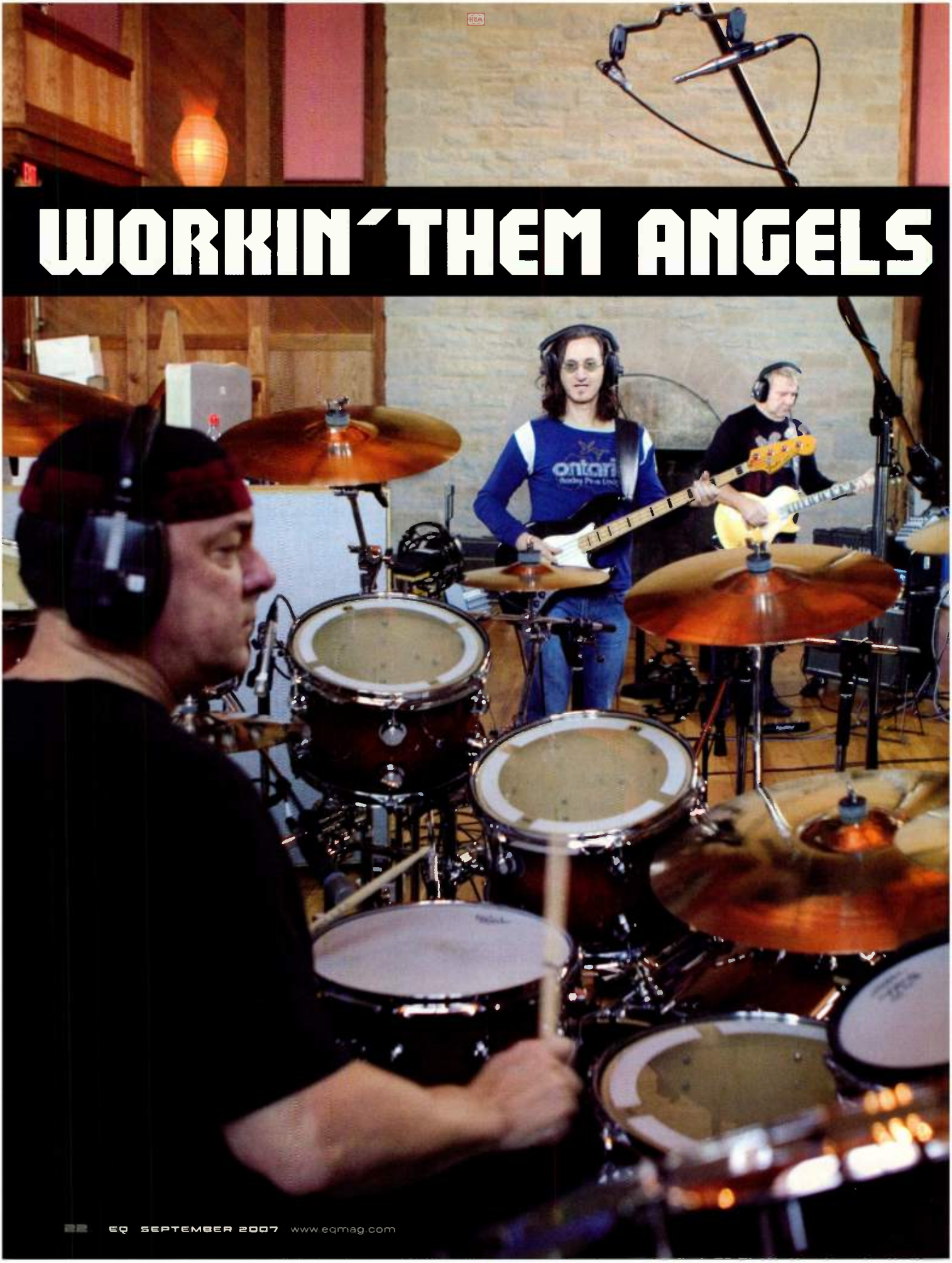


WORKIN´THEM ANGELS

RUSH

AND PRODUCER NICK RASKULINECZ REVEAL HOW THEY RECORDED *SNAKES & ARROWS*

by Will Romano

Sometimes dreams *do* come true — just ask producer Nick Raskulinecz. Or if your memory is as good as ours, think back to a small interview that ran in the May 2006 *EQ*, where Raskulinecz — who has worked with Foo Fighters, Velvet Revolver, Marilyn Manson, and others — was asked which band he would most like to produce.

The answer was swift and simple: "Rush. Nobody plays like those guys anymore."

The veteran rock act can still fill gianormous arenas almost 40 years after its inception, and consistently moves hundreds of thousands of records without conforming to popular music standards. And while many bands of Rush's stature are content to find a comfort zone and stay there, the Canadian trio opted to try something different for its 19th studio release, *Snakes & Arrows* [Atlantic], and give the enthusiastic Raskulinecz a chance to push the band to new, and *old*, heights.

photos: Andrew MacNaughtan

RUSH

"Nick said, 'I've been a fan since I was 11 years old,'" relates Rush guitarist Alex Lifeson. "And he told us that when he heard the bass pedals back then, and the way we wrote a chorus or a bridge, it stayed with him forever. He didn't think we should give up on those things — just that we should celebrate our original concepts with a modern package. That really struck a chord with us."

Alex Lifeson with his Telecaster and array of amplification laying down guitar tracks for the *Snakes & Arrows* sessions while Nick Raskulinecz mans the Pro Tools rig.

LOVE IS IN ALLAIRE

Initially, the plan was for drummer Neil Peart to cut his drum tracks at Allaire Studios in the Catskill Mountains in upstate New York, and then return to Toronto to finish the album with Lifeson and bassist/vocalist Geddy Lee.

"I got the vibe from Neil that he was very passionate about going to Allaire," explains Raskulinecz. "We were all trying to talk him into going somewhere that was a little more convenient for Alex and Geddy, because they were pretty dead set on staying in Toronto. But I could see something in Neil's eyes, and when he called me up about three weeks before we were to start recording, I asked him point blank, 'Neil, where do you want to do your drums?' He said, 'I really want to go to Allaire.'"

"There really aren't many good drum rooms in Toronto," explains co-executive producer and equipment co-supervisor Lorne Wheaton. "The Great Hall at Allaire is the same room we used for Neil's DVD, *Anatomy of a Drum Solo*. It sounds great, and Neil is used to it. That's the reason we went there."

"I wanted to use *my* studio for recording guitars," says Lifeson, who had planned on Peart and Lee doing a few at Allaire, and then resuming the project back in Toronto as soon as possible. "In fact, I had everything already set up, because I was looking forward to being in my own space. It's a small, private studio, but it's a really good-sounding room."

Less than 40 days later, *Snakes & Arrows* was done. And the band had not moved an inch since they settled in at Allaire.

"Once we got there, we realized there was a great advantage to being at one studio for the whole recording project," says Lifeson. "The energy in the building was so positive, and the gear is great. They have *everything* there — amazing guitars, basses, and synthesizers that the owner had been collecting for years and years and years."

PRODUCING LEGENDS

Although Rush has made tremendously successful and classic albums during its existence, the members still looked to Raskulinecz to play the role of a traditional producer. He helped them rewrite and arrange material, and tweak their performances.

"It is real easy to love a band, and then be disappointed in their material when you are working on an album," the producer says. "But I wasn't disappointed at all. I was just honest. The first time I heard some of the tracks, I told them exactly what could be better about them. I thought we were missing an up-tempo tune with some weird off-time bits, and a big, kick-ass sing-along chorus — which is 'Far Cry.' I felt we were missing an acoustic-based, modern-day 'Closer to the Heart' with a really catchy chorus — which turned out to be 'The Larger Bowl.' And I challenged them to write the most screwed-up, complicated instrumental that they had ever written, and they came back with 'The Main Monkey Business' — which they wound up recording live."

RUSH

From the earliest days of pre-production, the collective vision of Raskulinecz, recording/mixing engineer Rich Chycki, and, of course, the band was to create a record that would nod in the direction of Rush's glorious prog-rock past, pay homage to their influences, and maintain the band's relevance in the current mainstream rock world. As a result, "new vintage" quickly became the buzz term of the Allaire sessions.

"'New vintage' is a good phrase," Lifeson says. "And Rich was so quick at creating and pulling up sounds that define 'vintage' — big, ballsy, powerful, and clear. I was getting all the elements I always wanted to hear in my guitar sound."

Discerning listeners will hear a patented *Hemispheres* F♯ chord in the intro of "Far Cry," and recognize the nod to Eric Clapton and B. B. King during the opening guitar break in "The Way the Wind Blows," and Lifeson attributes a fair share of the classic sounds on *Snakes & Arrows* to renewing relationships with old friends.

"I was using my Gibson ES-335," says Lifeson, name-dropping the guitar he played on such celebrated Rush classics as *2112* and *Caress of Steel*. "I was hugely influenced by Eric Clapton when I was young, and it was nice to take a little bit of a bluesy approach to a song."

For his part, Lee fussed over a Mellotron — an infamously unpredictable piece of equipment that he hadn't used in years.

"We wanted to use orchestra-like glissandos on 'Faithless,'" explains Lee. "But I had to play the glisses by manipulating the pitch wheel on the Mellotron, which involved finding the right position on the wheel, marking it with tape, then moving the wheel down to another note, and marking *that* position with tape. It was all very Rube Goldberg."

In addition, Raskulinecz convinced Lee to return to his equally temperamental Moog Taurus — a 13-note analog synthesizer housed in an organ-style pedalboard that had, in the past, allowed Lee to accompany Lifeson on guitar or play keyboard while holding down a bass part with his feet. But because the Taurus tuning is so finicky — Lee remembers having to retune the synth for every new part he'd play in the studio — the band had jettisoned the pedals in favor of samples for recent projects.

"The Taurus pedals are on almost every song — which is something that hasn't happened since 1985's *Power Windows*," says Raskulinecz. "And that's one of the reasons *Snakes & Arrows* sounds so big and powerful — you don't hear the pedals so much as you *feel* them. To record them, we went direct through a Chandler Germanium preamp/DI, and pushed the preamp's Thick button to add more of a low-end rise to the sound. Then, the signal went straight to tape. There was no compression, or any other processing."

Chandler's Cody Brown explains that the Thick button on the Germanium delivers a gentle frequency bump that peaks around 100Hz.

"When you push that button in combination with boosting the unit's Gain and Feedback controls, you can achieve a firmer low end for instruments such as the Taurus," says Brown.

RECORDING LIFESON'S GUITARS

Lifeson rekindled his romance with the acoustic guitar for *Snakes & Arrows*, echoing material from earlier Rush records such as 1975's *Caress of Steel* and 1977's *A Farewell to Kings*. For most of the new record, Lifeson played Garrison 6- and 12-string acoustics, as well as his old Gibson jumbo acoustics, and the Gibson 12-string he used on "Closer to the Heart" (from *A Farewell to Kings*). In addition, he played other acoustic instruments, such as mandola, mandolin, and bouzouki throughout the album. Chris Griffiths

Battling the room reflections at Allaire was a challenge for Raskulinecz and company, who ended up surrounding Peart with a variety of gobos in a semi-circle, dubbing the arrangement "Stonehenge."

RUSH

of Garrison Guitars had Lifeson's acoustics custom built for the *Snakes & Arrows* sessions.

"We talked with Alex about what he used in the past, what he has really liked, and what were the deficiencies in the instruments he had used," says Griffiths. "We also asked whether he was looking for volume and projection, or low-end response, and we built guitars around his descriptions. For the 12-string, we used a cedar top to increase midrange response and mellow the overall tone a bit, because a 12-string can tend to sound quite bright. For the GDC 50 — which is his 6-string guitar — Alex was looking for good bass response and good projection, so we went with solid rosewood for the back and sides. That's probably the best wood to use for bass response."

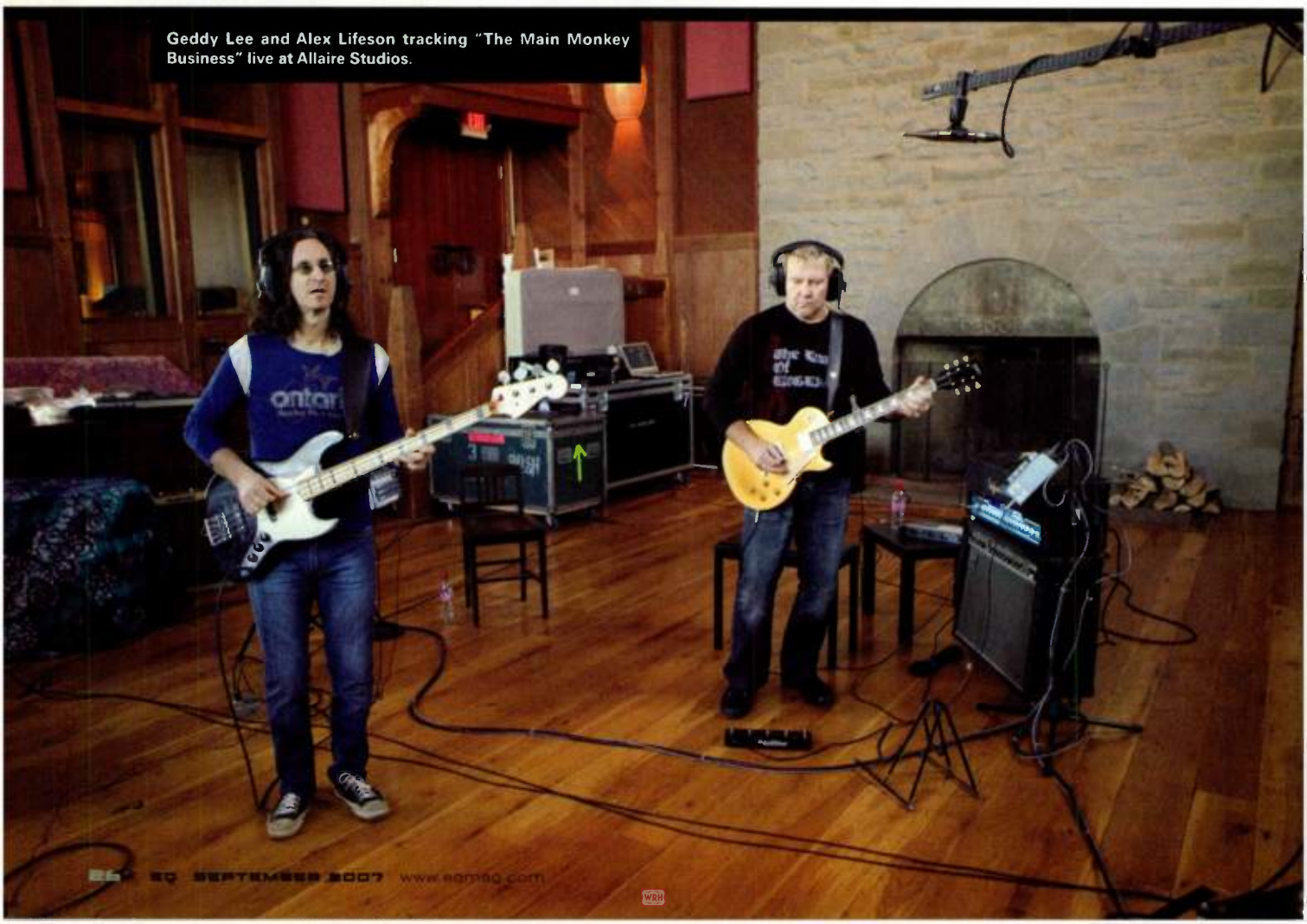
Of course, bringing back the acoustics also brought back the challenge of effectively blending electric- and acoustic-guitar tones.

"We were into having an acoustic guitar running through an entire track to clarify a lot of the chord work, but acoustics can really take up a lot of space," explains Raskulinecz. "To make sure the massive electrics and massive acoustics mixed together, we typically recorded the electric stuff first, and then did the acoustic tracks so we could monitor whether there were any clashes or muddiness. We also tried to rein in some of the frequency spectrum of the electric guitars by plugging Alex into smaller combo amps — a Marshall JTM45 2x12 and a 1964 Vox AC30 — rather than big 4x12 stacks.

"I CHALLENGED THEM TO WRITE THE MOST SCREWED-UP, COMPLICATED INSTRUMENTAL THAT THEY HAD EVER WRITTEN." -NICK RASKULINECZ

"A lot of the reason that you can hear everything is because Alex is playing ten guitar parts, and none of them are doing the same thing," laughs Chycki.

"Take the song 'Far Cry' as an example," adds Raskulinecz. "We did the verse first — which was just a single track — using



Geddy Lee and Alex Lifeson tracking "The Main Monkey Business" live at Allaire Studios.

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a Fender Telecaster, an old Musitronics Mu-Tron III envelope filter, and a little 18-watt Marshall combo. Then, for the pre-chorus, we used a goldtop Les Paul and a Budda 45-watt combo. The main riff was the Telecaster and the Budda. For the choruses, we used the Les Paul and a Marshall JMP45 combo, and, on the bridges, we used the Les Paul through one of Alex's Hughes & Kettner amps. The album really was about constructing layers of different guitar tones."

To make tone play easy, all of Alex's amp heads and pedals were set up in the control room, and the speaker cabinets were positioned in the studio's Great Hall — which measures 50' x 35' with a 45-foot cathedral ceiling. Two Little Labs PCP Instrument Distro amp splitters simultaneously routed the signals from six different heads to various speaker cabinets, which were all miked with a Shure SM57 and a Neumann U47 FET. Both mic signals were submixed to a mono track, and Raskulinecz assigned each amp to its own channel, which, during the mixdown process, allowed the band to pick and choose which guitar sounds they wanted for each song, or each *section* of a song.

"We would literally mix and match," says Raskulinecz. "We'd say, 'Let's listen to the Marshall.' 'Okay, let's listen to the Budda.' 'Now, let's listen to the Hughes & Kettner.' Or, we'd audition a combination of things. I'd say, 'I really like the top end of the Budda, and the bottom end of the Marshall. Let's hear those two together.'"

"THE TAURUS PEDALS ARE ON ALMOST EVERY SONG — WHICH IS SOMETHING THAT HASN'T HAPPENED SINCE 1985'S *POWER WINDOWS*."
—NICK RASKULINECZ

For Geddy Lee's vocals, Raskulinecz opted to put a Soundelux 251 in front of the singer, running into a Martech MS-10 mic pre and compressing with an "old, crusty dbx 160XT" ripped straight out of Lee's live rig.

RUSH

"WE REALLY DIDN'T HAVE A SUPER-COMPLEX RECORDING PATH. WE WERE TRYING TO MAINTAIN A SIMPLISTIC, ORGANIC APPROACH TO RECORDING SO THAT WE WOULD NOT PUT OURSELVES INTO A PHASE NIGHTMARE WHEN IT CAME TIME TO MIX." –RICH CHYCKI

To record acoustics, Chycki typically positioned an Earthworks QTC50 small-diaphragm omnidirectional mic about 12 inches from the body, and pointed at the soundhole. A Royer R-121 ribbon was also placed close to the guitar to exploit proximity effect and capture some bottom end. In cases where an organic-sounding stereo performance was desired, Chycki would use a Telefunken Ela-M 251 tube mic along with the QTC50. The mic preamps were Chandler Germaniums, and a little EQ was often added to preserve the detail of the guitar tone.

"I'd also plug the output of the Garrison's onboard pickup system into a Countryman direct box, and a Neve 1064A preamp," says Chycki. "The direct signal was laid straight to Pro Tools, and we didn't compress it into anything. We just left it there, and we would use the track at mix time if we wanted a real glassy texture — such as on the song, 'The Main Monkey Business.' We really didn't have a super-complex recording path. We were trying to maintain a simplistic, organic approach to recording so that we would not put ourselves into a phase nightmare when it came time to mix."

Although we'll take Chycki at his word, the recording process for the pensive 12-string solo-acoustic piece "Hope" — which conjures the sound of Jimmy Page interpreting Indian music atop the rolling hills of Ireland — seems far from simple, even if the ultimate effect sounds intimate and organic.

"Well, that *was* a very mathematical approach to recording acoustic guitar," admits Chycki. "The mic positions were all measured out, and it literally put Alex at the apex of a six-foot equilateral triangle. Alex was rehearsing, and bumping his hands against my tape measure as I was measuring each mic's distance from the guitar. There was a stereo pair of QTC50s about six feet away, and I had a Royer SR-30 about

GETTING VINTAGE GUITAR TONES WITHOUT VINTAGE GEAR

Okay, so you don't have a guitar collection like Alex Lifeson, who can pull out a vintage guitar (and vintage amp) to get a vintage sound. How can *you* get that elusive, coveted sound?

First off, use a vintage style of playing. Listen to guitar greats such as B. B. King, Eric Clapton, Buddy Guy, and Mike Bloomfield — most didn't use vibrato tailpieces, choosing to get their vibrato from their fingers. Also, notes were often not bent up 100 percent to pitch, but just a shade flat to add tension. Phrasings were generally more economical than later guitar players, with good usage of space, as well as flurries of notes.

As to tone, remember that a small tube amp can sound just like a big tube amp as far as a mic is concerned. Avoid dialing in too much distortion. Find that sweet spot where the amp starts to break up, and go just a bit further. Runaway distortion and "scooped" midrange frequencies didn't come into vogue until later. And if you're using a software amp simulator, you may need to bite the bullet and upgrade. Newer amp sims, like IK Multimedia's AmpliTube 2, take advantage of more powerful technology, and more experienced modeling engineers to give a smoother transition from clean to distorted tones. Again, it's all about finding that sweet spot where an amp isn't too clean, or too dirty, but just right.

Vintage EQs, whether built as part of an amp or in a rack of gear, tended to be built around largely passive circuits, with amplification used to make up for signal loss. This translates to gentle slopes and natural-sounding EQ curves. If you're EQing with a parametric, use a broad bandwidth, coupled with small amounts of boost. Also, try some of the plug-ins that emulate vintage EQs, such as those that aim for the sound of a Pultec EQ.

Finally, remember to explore the tonal options of your guitar and amp *first*, before you even think about setting up a mic, let alone processing or mixing. The best vintage sounds happen between your fingers and the amp's speaker. Ideally, all your mic should need to do is pick it up.

—Craig Anderton

12 inches from the body. We were recording in Allaire's Great Hall, and the sound was so huge that we had to put down rugs on the floor, and surround Alex with a half-circle of gobos to diminish the reverb time of the space. We didn't want the guitar to sound too echo-y. But it was worth the trouble, because if you wear headphones, you can almost *feel* Alex moving around as he performs."

PEART'S RHYTHM METHOD

It's hard not to be surprised by the natural timbre of Peart's drums when listening to *Snakes & Arrows*, as such naked drum sounds have been absent from much of Rush's recorded catalog. Peart used his custom Drum Workshop "West Coast" recording kit — which was built when Peart needed a kit to record some tracks for Vertical Horizon at Los Angele's Capitol Records studio in 2006, and the drummer was fretting over the logistics of sending his usual setup down from Toronto.

"It's a carbon copy of his stage kit without the electronic pads," says drum tech Lorne Wheaton. "Part of the kit uses Vertical Low Timbre [VLT] shells, which employ vertical, rather than horizontal, wood plies that resonate a little more, and at a lower pitch. We also used his 14" x 6.5" VLT snare for the first time on a recording — which is odd for us, because we'll often show up for sessions with 14 or 15 snare drums. But we didn't take that snare off the kit once."

Another factor that greatly affected Peart's drum sound was Allaire's Great Hall.

"It's a huge space," says Raskulinecz, "but it had a really open and transparent sound, and there weren't a lot of room reflections bleeding into the close mics. This is because we intentionally put a lot of gear in there. We packed the room full of guitar and bass stuff in order to break up reflections. Then, after moving all the gear in, we walked around the room, hit just the snare drum, and listened to how it sounded. When we found the sweet spot, we set up his whole kit right there."

"Of course, we still had to take down the room sound a bit," adds Chycki. "It looked like Neil was recording in Stonehenge, because we had gobos up in a semicircle around the back of his kit."

But even with all the work spent positioning the drums in just the right spot in a good-sounding room, Raskulinecz credits Peart's drum heads as largely contributing to the album's drum sounds.

"I'M NOT GOING TO SIT THERE AND GRID EDIT NEIL PEART'S DRUM PERFORMANCE. THAT'S AGAINST THE LAW." -NICK RASKULINECZ

"They had been on those drums for more than months," says Raskulinecz.

Peart's recording kit also utilized Roland V-Drum pads — positioned over his 15" and 16" floor toms, and off to the drummer's far left — and a Roland TD-20 Percussion Sound Module. Sampled sounds used on the album include Metasmack (a tambourine that makes the scene in "The Main Monkey Business"), a tuned-down roto-tom, a guiro, sleigh bells, and a pitched whistle.

For cymbals, Peart used his Sabian Paragon signature line.

"New to this session was something we had been working on with Sabian — a cymbal called Diamondback, which is a type of China cymbal with four tambourine jangles for rivets," reveals Wheaton. "That cymbal is on 60 percent of the songs. It's not real loud, as the jangles won't let the cymbal ring out for any length of time, and it has such a great sound when you use it as a ride cymbal. It's not overpowering, and there's a nice decay."

Because of Peart's extensive set up, proper mic placement was essential to avoiding phase issues.

"Recording his drum set requires tons and tons of microphones, and you really have to have a good understanding of how phase works, as well as the phase relationships of all of these different microphones," says Raskulinecz. "The other thing is that Neil often goes from one side of this huge kit to the other, and we had to make sure we had the whole spectrum covered. I wanted every one of his fills to jump out of the drum set. We spent half a day auditioning mics and getting drum sounds."

For overheads, the team used Earthworks TC30s because Raskulinecz liked their airy top end. For even more high-end detail, a pair of Coles 4040 ribbon mics were positioned up close and in front of the kit — one 4040 to the far right, and the other to the far left. A "crusty old" RCA 44 was placed at the back of the kit, and down low.

"That 44 took such a beautiful picture of the whole kit," says Raskulinecz. "I think that one microphone was responsible for 25 percent of the drum sound when the mix was all said and done."

"The Earthworks overheads were equidistant from the snare, and that contributed to the

EMULATING TAURUS PEDALS

The Taurus bass pedals had all the benefits of analog synthesis — when they worked. Because they were based on analog electronics, there were always the issues of component drift, tuning instability, and reliability.

If you're looking for that *sound*, though, you're in luck. Due to the iconic status of the Minimoog, several software companies (in particular Creamware, Arturia, and GForce) have created plug-in virtual instruments that emulate its sonic character with surprising accuracy. As this sound is very close to that of the Taurus, with suitable programming — long sustains on the envelopes, and keeping the filter enveloping from kicking up too high in frequency — you can get those growling, huge bass sounds formerly available only with analog synthesizers. —*Craig Anderton*

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imaging of the kit, as well," adds Chycki. "Neil was sitting on a road case, watching me tape measure his kit to death to avoid phasing issues. We even made sure the RCA 44 was positioned behind him at the same distance from the snare as the overheads."

"We used a Shure Beta 57 for the top of the snare, and we miked the side of the shell with a Neumann KM84 pointing at the wood, which was Rich's idea," says Raskulinecz. "You can really hear the attack and the punch of the drum by pointing the mic at the body of the snare. The snare bottom was miked with a Sennheiser MD 441. We miked the tops of the toms with AKG C414 TL-IIs to capture detail, and we used Sennheiser MD 421s on the bottoms to pick up the resonance. Neil said this was the first time the bottom head of his toms had ever been miked. I was a little surprised about that."

"EVERY PRODUCER I WORK WITH HAS A NEW MIC THAT SOUNDS BETTER THAN ANY MIC EVER MADE." –GEDDY LEE

Peart's bass drum presented its own set of challenges, from phase issues to the physical aspects of miking it.

"Neil prefers to play with both heads of his kick drum on, so we couldn't get access to the beater skin," says Chycki. "We ended up taking off his kick-drum heads, putting an AKG D25 inside, and then sealing it up again. That mic obviously has a different phase relationship, because all the other mics are at the rear of the kick drum. The other mics we had were a Neumann U 47 FET, AKG D112, and a Yamaha NS-10 (*Editor's note: The Yamaha NS-10 is a studio monitor, but by taking the speaker cone out, and wiring it to an XLR, you can place the driver on a kick-drum head to capture great low-frequency sounds*). We aligned the D25 with the other mics using a Little Labs In Between Phase Alignment Device, which checks phase issues, and puts mic signals in phase quickly. This is important, because one of the reasons the drums sound so chunky is that you are hearing them

Neil Peart shown tracking what Raskulinecz calls "fill passes" — extra fills recorded after the basic tracks that Raskulinecz would then put in place of the originals for a more diverse recorded performance.

without any phase conflicts. There is no conflict because the image of the kit remains consistent."

Miking issues aside, Peart's recorded performances are breathtaking, and Raskulinecz was up for any tactics that would ensure the drummer's fantastic energy was captured on tape.

"For some of the songs, I actually went out there in the studio with headphones on, and stood in front of him air drumming along to kind of re-energize him," says Raskulinecz.

"Once Nick gained Neil's trust, Neil would do anything he would suggest," says Lifeson, who programs the rough rhythmic arrangements on the band's demos before handing them off to Peart. "There were a number of times when Neil would finish his take, and he'd be totally exhausted, and Nick would say, 'Dude, that was awesome. But you might just want to go out and try one more totally different take.'"

Raskulinecz even demanded more of Peart once the drum tracks were "officially" finished.

"Once the body of the track is done, I'll have the drummer go back and do what I call 'fill passes,'" explains Raskulinecz. "I'll say, 'Now I don't want you to play any of the fills you've already done. I want to hear completely different fills every single time. And I want you to do a fill at the end of every bar.' I do that all the time with Taylor Hawkins and Dave Grohl of the Foo Fighters. A lot of times, the fills that come out of the fill passes are the ones that make it to the final drum take."

"WE PAID CAREFUL ATTENTION NOT TO BEAT THE CRAP OUT OF BUS COMPRESSORS, AND WE *DID* TAKE NUCLEAR WEAPONS TO MAKE SURE THEY DIDN'T CRUSH IT TO DEATH AT THE MASTERING FACILITY." –RICH CHYCKI

But while some fills might have been edited into the final drum passes, Raskulinecz is quick to assert that no fiddling with Peart's actual performances occurred.

"We recorded on Pro Tools, but this is literally a performance record," he says. "I'm not going to sit there and grid edit Neil Peart's drum performance. That's, like, against the law."

TRACKING LEE'S BASS

"Geddy prefers to record his bass using three individual signal paths," says Chycki. "They just all happen to be direct — which also means there are none of the phase issues you get when running direct and miking a bass amp simultaneously."

The signal chain included a Tech 21 SansAmp DI, a Palmer Speaker Simulator, and a Martech MSS-01 Bass DI. Chycki recorded each direct line through a Neve 1081 preamp, and also employed Universal Audio LA-2 compressors.

"Everything started with Geddy's '72 Fender Jazz Bass," says Raskulinecz, "and all of his sound is in his fingers. It's just a matter of getting what he does directly into the recording format."

"I'm really happy with all of my little direct boxes," says Lee, who, in addition to the Jazz Bass, used a fretless Fender Jaco Pastorius Tribute Bass on "MalNar," and a Fender Custom Shop Fender Jazz Bass on "Bravest Face." "I found a very friendly and portable way to take my bass sound wherever I go without the cumbersome use of giant, booming amplifier cabinets."

CAPTURING VOCALS

"I stumbled onto my favorite vocal sound, which is a Soundelux 251 into a Martech MS-10 mic preamp into a crusty, old dbx 160XT compressor that came off a live sound rig," says Raskulinecz.

"Every producer I work with has a new mic that sounds better than any mic ever made," says Lee with a laugh. "But I was happy to try whatever Nick wanted — as long as the vocals sounded good. Normally, I like to work right up on the mic, but the Soundelux is particularly sensitive, so I had to back off a little bit."

MIXING, MASTERING, AND DIGGING THE RESULTS

"We mixed over the course of nearly four weeks," says Raskulinecz. "And while all of the band members have really sharp ears, they gave me a lot of freedom."

"It's not a super-loud record," says Chycki, who mixed the album on a Neve 88R at Ocean Way Studios, "and it was not hyper-compressed. We really wanted to make a record that's clean, wide, big, and open. We paid careful attention not to beat the crap out of bus compressors, and we *did* take nuclear weapons to make sure they didn't crush it to death at the mastering facility."

"I'm really sensitive to compression," adds Raskulinecz. "When things are too compressed, you lose dynamics. This is why we didn't track with a lot of stuff compressed. We saved the compression for the mix, where we would have the most control over the dynamics."

The mastering process was run off a one-inch analog mixdown master tape, and then the mastered version of the album was also tracked to analog — a strategy that Raskulinecz feels gave *Snakes & Arrows* its "sonic boldness."

"Nick is a very enthusiastic, positive, and creative guy," enthuses Lee, as he assesses the finished album. "I don't think anyone realized what a great chemistry we had on our hands."

"This is definitely a Rush record," adds Lifeson, "and the sounds are very vintage and classic — especially the guitar tones. "When you have a cheerleader like Nick, it just opens so many doors. I'm an early riser, and the whole time we were recording, I'd be looking for jobs to do in anticipation of getting started. Every day was like that. We couldn't wait to get in there and start playing."

"I genuinely love the music and the songs," says Raskulinecz. "This wasn't about producing a big-name band, or a getting a credit. It was just about making a really great record. I wanted to do it for these guys. They deserve it. I want them to be on top." EQ

hear this

THE GLOBE

"The Globe from Violet Design is a pleasantly airy, vintage-sounding microphone, which may have you comparing it to old classic German microphones used on your favorite recordings... The microphone is very beautiful to look at, appointed with rich purple, gold and silver colors that make it look more like some kind of sculpture at first glance... I can't stress it enough, a great sound should inspire the performer or artist to a better performance. The Globe does that."

The Globe is as close to heaven, as I'll ever hear.

— Reviewed by Mike Lawson

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THE SOFTWARE POWER USER GUIDE

Exploit Your Software and Computer with These Timely Tips

A power user doesn't just know how a piece of software works, but knows how to use it for maximum efficiency and productivity. More importantly, the true power user knows how to do this effortlessly — the most important aspect of using music software. Why? Because you don't want to have to think about technical matters when you're trying to be in a creative space. Let's start off with some basics on how to become a power user, then segue into more advanced power user techniques.

TIPS ON BECOMING A POWER USER

How to Learn a Program. In some ways, the most difficult way to learn a complex program is to read the manual as you would a book. Programs like host software are so complex, there's no "narrative" to a manual that leads through the entire process of using a product; manuals are more for reference. And it *has* to be this way, because the narrative for someone wanting to create a MIDI-based project is going to be different compared to someone who's doing, say, audio-for-video or remixing.

There's a story that may be apocryphal, but it rings so true I tend to believe it. The story goes that Microsoft was trying to figure out what to include in the next version of Word, and surveyed Word users as to what features they would most like to see. As it turned out, *virtually all the feature requests were already in the program* — people just didn't realize they existed.

With so much to learn, what kind of a strategy will allow you to master a program? The secret: *Use the same strategy as learning a musical instrument.* In other words, build proficiency over time, through a combination of rote exercises and creative play.

Set aside regular "learning time" with a program — even if it's only 15 minutes a week. Think of it as equivalent to practicing scales. For example, do you feel you're not taking full advantage of Reason's Combinator feature? Set aside a couple hours, and immerse yourself totally in everything the manual and online help have to say about using the Combinator.

Because I write a monthly column on Sonar applications, I devote a certain amount of time every month to pursue some aspect of the program as deeply as possible. This has helped me greatly in becoming a Sonar power user, because I simply pick a topic I need to know more about, and drill down through the online help while working on a real-world project.

As to third-party books, their quality is highly variable. For every excellent book like Kurt Kurasaki's *Power Tools for Reason 3.0,* there are dozens more that are simply rewrites of the manual with a few extras thrown in. If they help you, great; but most of the time, you can save yourself some money and simply use the available documentation.

Stop Software Session-Killers! You've probably encountered some problems and glitches while using software (if you haven't, you are the luckiest person on earth; put away this issue immediately, and take the first available flight to Las Vegas). And you probably figured out a solution, and were so happy you immediately went back to work. Next time, though, *take notes how you solved the problem* so that the next time it happens, you won't have to re-invent the wheel.

I have a folder on my hard drive called "Quirks" that contains a long document of problems I've solved, and the steps that solved them. In fact, the "Fixing Music Computer Problems" section at the end of this article is loaded with some of the contents from my Quirks file. For example, the one about the RXP REX file player not being able to load files had happened to me before, but I didn't remember exactly how I solved it. This time, I wrote it down. The next time I have a problem with something related to REX files, I'll call up my Quirks document, do a search on REX, and see what pops up.

I also paste tips from online forums when I run into a real nugget, and include tips I contribute to forums. For instance, on one forum someone couldn't record the MIDI output from Steinberg's Groove Agent in Sonar, even though it was supposedly possible. I remembered that it was crucial to enable "Record MIDI Output" in Sonar *during* the process of inserting Groove Agent into a project; if you tried *after* inserting, even if "Record MIDI Output" was checked, closing the dialog box unchecked the check mark. So, I wrote a step-by-step answer to the forumite about how to record Groove Agent's MIDI out — and pasted it into my Quirks document, just in case the problem came up again in the future and I didn't remember the exact fix.

You might think "I'll surely remember how I solved this problem in the future," but if you use a lot of programs, you might not. Why take a chance? Nothing destroys your creative flow faster than a technical problem, so having your own "knowledge base" of solutions will make your life easier and save you much time.

Google's Repair Service. Whenever you encounter a problem that threatens to destroy your creative flow, *don't troubleshoot.* Instead, do a Google search on something like "[program name]" "known issues" (or narrow it even further, of course) and see what you find. Generally, if someone has experienced the same problem and it happens consistently, it will have been documented in some forum, somewhere . . . and hopefully, the solution is there as well. Next, check for updates but not just for your software: Also check for audio interfaces and new graphics card drivers (you might be

BY CRAIG ANDERTON

Fig. 1: By bouncing down tracks, it's possible to circumvent Pro Tools LE/M-Powered's 32-track limitation — without the downsides associated with track bouncing of the analog era.

Fig. 2: Reason's NN-XT set up to provide a varispeed effect. The file to be modified has been loaded into the NN-XT, and a single note drawn into the sequencer to trigger the file. In the Pitch Bend controller lane, the line tool has drawn in a constant amount of upward pitch bend to provide the varispeed effect.

Fig. 3: Reason's MClass processors include an Equalizer, Compressor, Maximizer, and Stereo Imager. They're shown here placed in a Combinator.

surprised at how much your graphics card can affect audio performance).

Keyboard Shortcuts — the Easy Way. Although some people believe that using a mouse is faster than keyboard shortcuts, I don't agree. But the problem with keyboard shortcuts is programs include so many of them, and frankly, it's not easy to remember what "Ctrl+Shift+Alt+7" stands for. So, many people just give up, and bumble around with the mouse.

Instead, print out the list of available key commands and highlight those for functions that you use a lot. Pick one to learn, and use it every time you need to accomplish that particular function. When you've mastered that shortcut, learn another one. Keep adding shortcuts to your repertoire until you've learned the most important ones.

Also, note that being able to customize shortcuts is a wonderful thing, as you can devise a "Rosetta Stone" of shortcuts that perform the same functions in every program you use.

BEATING TRACK COUNT LIMITATIONS

It's not uncommon for programs to claim "unlimited track count." Of course, that's in a land where computers have unlimited processing power; sorry, but you're not going to get 412,574 tracks out of *any* host program! The reality is that past a certain point, your computer will simply not be able to pull any more audio tracks off of a hard drive, nor have the CPU power to process them.

But there are also programs with limited track counts, and these tend to be "lite" versions of bigger programs. For example, while Pro Tools LE and M-Powered ("LE") can open sessions with up to 128 tracks, only 32 mono (16 stereo) tracks can play back simultaneously. Installing the Music Production Toolkit (reviewed 5/07) allows playing back up to 48 mono or stereo tracks at once, but you might still need more.

The answer to getting additional tracks is the same as it was back in the days when people were desperately trying to squeeze another track or two out of their 4-, 8-, and 16-track analog recorders: *bouncing*, also called *premixing*. But matters are much better in the digital age, because you can premix without the generation loss (specifically, noise and distortion) inherent in analog. And also unlike analog, where premixing usually meant erasing tracks that could never be recovered, with many digital programs you can save the tracks you bounced, thus letting you bring them back into the project and try another bounce if things didn't go right the first time. (Or in the case of Pro Tools LE/M-Powered, you can take advantage of the 128 tracks per session limit to store the disabled, original source tracks after you've completed the bounce.)

Speaking of Pro Tools LE, let's use it to illustrate how bouncing can save your session, and possibly, your sanity in those situations where you need more tracks than you have.

Suppose you have an LE session with eight tracks left, and you decide a "Roy Thomas Baker" type of background vocal sound is really what the song needs. Trouble is, RTB sometimes recorded over 70 tracks of background vocals to get those huge parts on the Cars and Queen albums. Here's the solution.

1. Record eight background vocal parts on the eight remaining tracks.
2. Use the Voice Selector buttons (located directly below each of the faders on the LE mixer window) to temporarily disable the audio playback of two relatively unimportant tracks (*e.g.*, shakers). The buttons are normally gray and labeled "dyn" — the default dynamic voice allocation setting, and turn blue and say

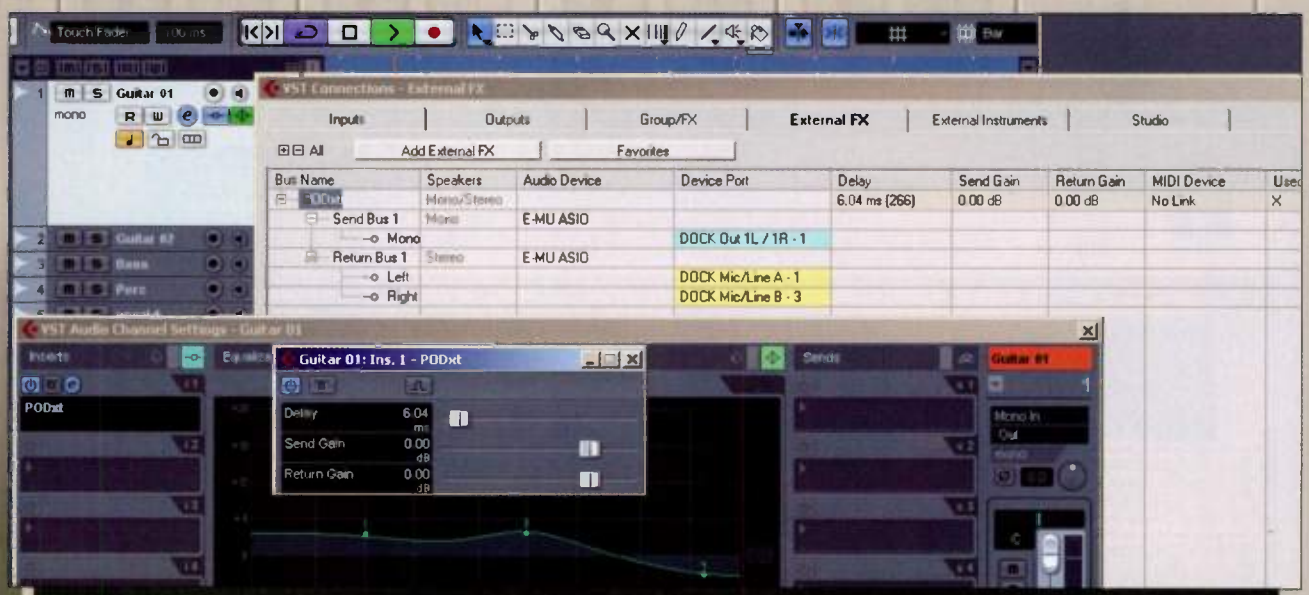
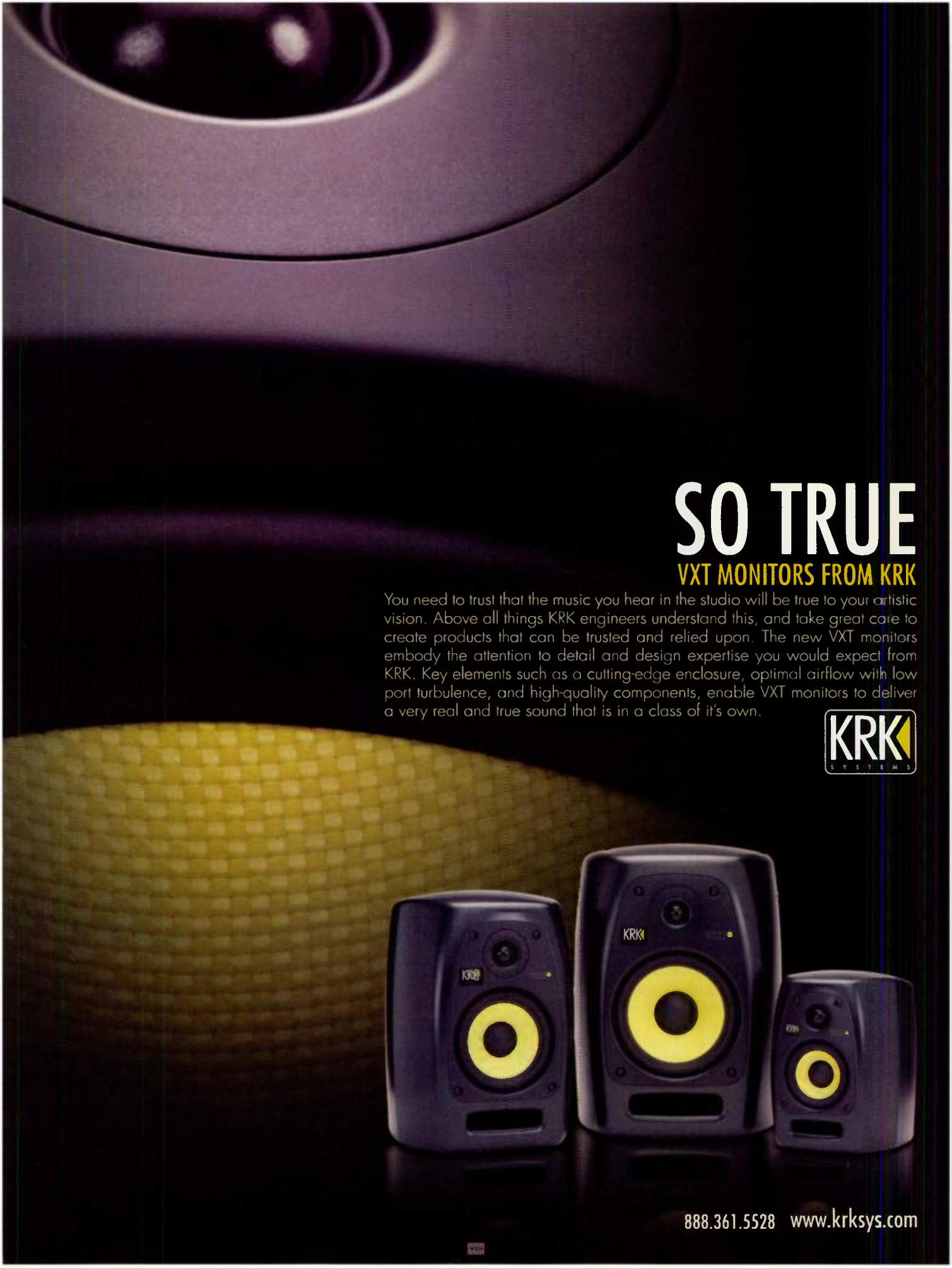


Fig. 4: Here's how to treat an external piece of hardware as a track insert effect in Cubase. The VST Connections window is where you create a send bus that routes signal to the effect (in this case, through an E-mu 1820m interface output to a PODxt), as well as bring it back into the host sequencer through a return bus. In front of that window, the VST Audio Channel settings window shows the PODxt inserted as an insert effect. The frontmost window, Insert Edit, lets you adjust the Send and Return gain as well as "ping" (send a test signal through) the signal path. Cubase uses that data to compensate for the delay caused by going out through the interface and back again.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"off" when manually set to off, or for tracks that exceed the 32 or 48 track limits of LE and MPT. Tracks disabled in this way will also be "grayed out" on the edit screen. Or, click on the Track Type button, also located directly below the faders (Figure 1). On audio tracks, this icon looks like a miniature waveform. Clicking on it disables or enables the entire track (including plug-ins), in one easy step. When tracks are disabled with the Track Type button, tracks in the edit window will be grayed out — as will the mixer fader, all plug-in inserts, and aux sends.

3. Create a new stereo audio track. Assign an unused aux send as its input source (*e.g.*, Aux Bus 1 & 2 in Figure 1).
4. Set the output for the tracks you want to premix to Aux 1 & 2 so they're routed to the new stereo track. Watch your levels; if you premix too many "hot" tracks at once, you can overload the stereo premix track's input. If needed, lower the volume faders of all the individual source tracks by a few dB, or use Trim plug-ins.
5. Mix those tracks relative to the rough mix of the song, using whatever individual processors, automation, and other techniques as you feel appropriate, and record the premix to the new stereo audio track.
6. Use the Voice Selector or Track Type buttons to disable the tracks you just premixed. This will free up at least six tracks for additional overdubs, or eight if you're willing to disable the stereo submix you just recorded while you track additional parts. If you need to hear the first submix while tracking still more parts, just disable a few more tracks that you can afford to do without while you track the additional overdubs.

If you're running low on CPU power, disable any plug-ins on all of the disabled source tracks after premixing. Disabling a track using the Track Type icon does this step automatically, but if you used the Voice Selector buttons, you'll need to disable the plug-ins manually. Merely bypassing the plug-in (instead of disabling it) takes it out of the audio signal path, but still requires the same CPU resources as when it's processing audio. To toggle the plug-in between enabled and disabled, use the key command Control + Windows Logo Key + click on the mix screen's plug-in insert (on a Mac, use Command + Control + click). Either method will retain all automation and other settings whenever you need to re-enable the track or plug-in.

If that's still not enough tracks, or you'd prefer to premix your dozens of background vocal tracks all at once, there's one other option.

1. Instead of bouncing just a few tracks at once, do a premix of the entire song (for headphone monitoring purposes).
2. Record the premix to a new stereo track.
3. Disable *all* the tracks except for the new stereo track.
4. Create a couple dozen new tracks.
5. Record your wall of background vocal tracks on them.
6. Premix those down to one or more stereo tracks.
7. Disable the new vocal tracks.
8. Re-enable the original instrumental tracks.

It's usually best to premix into several stereo pairs — putting all the high harmonies on one stereo track, the low parts on another, and so forth, because it allows more control over them in the mix than if all the harmony parts share one stereo track.

Regarding input monitoring, note that Alt + K toggles between Input Only and Auto input monitoring; set it to Input Only so you can hear what's coming into the stereo track via the aux bus, even when you're not actually recording.

What if you later decide the levels, EQ, panning, etc. of your premix weren't right? Unlike an analog tape bounce, you still have the source tracks and automation saved and part of the session, so all you have to do is disable a few tracks, re-enable your source tracks, and redo the premix with whatever changes you want to make. You'll also have little or no sonic degradation when doing a digital bounce — especially

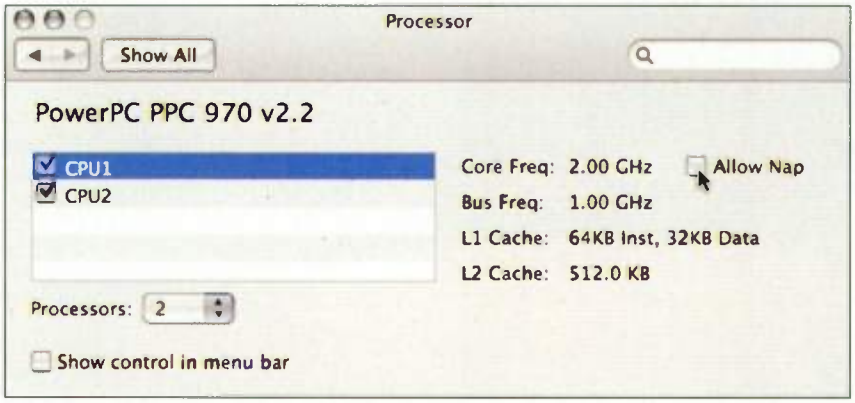

Fig. 5: Preventing the processor in a Mac PPC-based computer from "taking a nap" can improve audio performance when using FireWire interfaces.

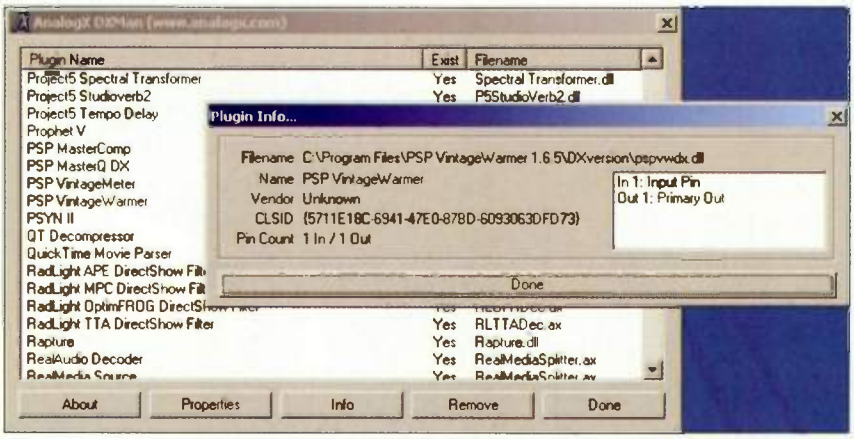

Fig. 6: DXMan is a simple program that shows the complete roster of DirectX plug-ins in your Windows computer. In this example, PSP VintageWarmer was selected, and the Info button clicked, to show the details about this plug-in.

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compared to bouncing on a narrow format analog multitrack — so it's even possible to do multi-generational bounces.

REASON IS MORE THAN JUST AN ALL-IN-ONE STUDIO

Propellerhead's Reason has been an immensely popular program, and with good, uh, reason, as its seductive combination of sequencing, synths, drums, samplers, and sophisticated patching options has made it a true virtual studio. Yet Reason has some other talents that are worthy of note to power users.

The Software Instrument Collection. Many programs bundle in soft synths these days as an extra added attraction, but they aren't always designed to compete with commercial versions. Yet rewiring Reason into a ReWire-compatible host (*i.e.*, just about all software hosts) gives you a suite of instruments including the SubTractor virtual analog synthesizer, NN19 sampler, NN-XT advanced sampler, ReDrum drum computer, Malström granular synthesizer, and (especially handy for hosts that don't support REX files), the Dr. REX loop player. That's a lot of synthesis firepower for under $500 list, and there are effects you can use with these instruments as well (delay, distortion, vocoder, etc.). As an added bonus, if you have a program that's weak on MIDI (like Adobe Audition), you can use Reason's sequencer to add MIDI sequencing.

Reason's Varispeed Control. Back in the analog days when people wanted to "hype" a recording a little bit, sometimes they'd turn up a tape recorder's variable speed control just a few per cent to raise the pitch a tiny bit — and you can simulate this effect in Reason (Figure 2).

1. Use the NN-XT File Browser button to locate the file you want to process, and load it.
2. Program a note into the sequencer to trigger this file, and have the note last the duration of the file.
3. Click on the "High Quality Interpolation" button in the main NN-XT rack section.
4. Open the NN-XT control panel.
5. Make sure none of the NN-XT modules are modifying the sound (*e.g.*, turn the filter off, disable any LFOs, and set the amplitude envelope Sustain and Level parameters to maximum).
6. Open the sequencer's Controller Lane. In the Controllers pop-up menu, select Pitch Bend.
7. In the Pitch Bend lane, use the Line tool to draw a line throughout the sequence for the desired amount of constant pitchbend. Adding a little bit of upward pitchbend produces the same effect as varispeed, as it raises pitch and shortens the file somewhat.
8. Go *File > Export Song as Audio File* to save the modified file. And don't worry about fidelity: With small amounts of transposition, the NN-XT's pitch-shifting algorithm is, for all practical purposes, transparent.

Your Mastering Suite. Reason 3.0 added several new, high-quality signal processors (Figure 3) suitable for placing in a Combinator to "master" Reason's output. But they can also be used with stereo two-track mixes, by using a procedure similar to the varispeed technique mentioned above: Load your file into the NN-XT, use the sequencer to provide a trigger that lasts for the duration of the file, apply the processors you want, then export the processed version as an audio file.

Guitar Synthesis, Anyone? Maybe MIDI guitar didn't take over the world, but it still has a dedicated following — and Reason provides some great synth power for MIDI guitar setups, as you can assign the six MIDI outputs from a MIDI guitar's strings to six different Reason instruments, then blend them with Reason's mixer.

RE-AMPING IN SOFTWARE

Re-amping is the process of taking a track from a multitrack recorder, sending it through external hardware like a signal processor, guitar amp, etc., then bringing it back into the recorder via an external input and recording the processed sound. Perhaps the most common use is to take a dry guitar track, run it through a guitar amp, and record the amp sound. Or, repeat the process through a different amp, record the additional track, and pan the two in stereo for a big, expansive sound.

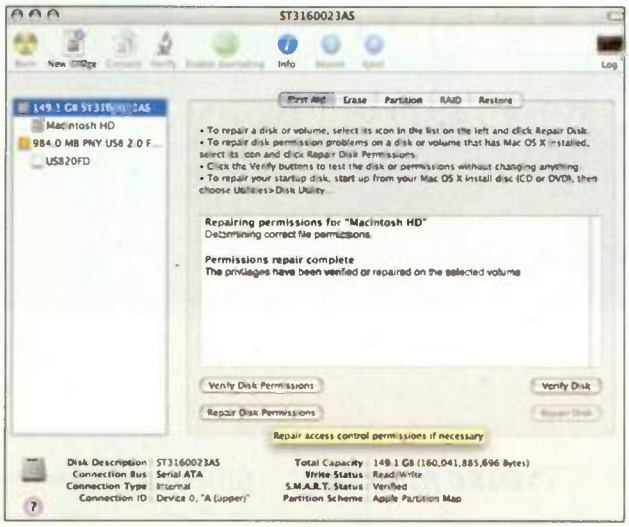

Fig. 7: Repairing Disk Permissions can solve a variety of Mac-related quirks.

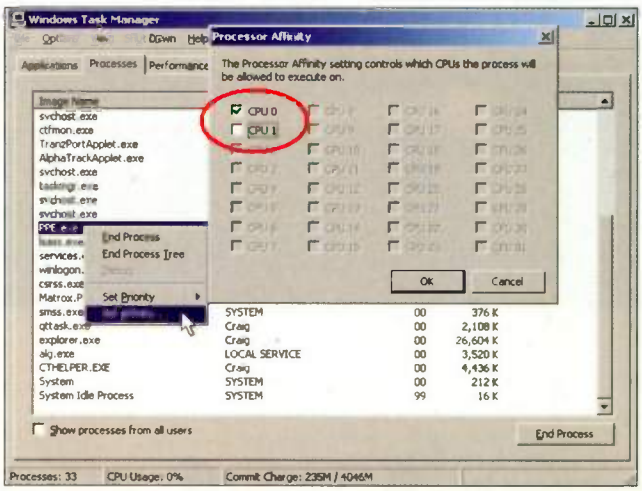

Fig. 8: If your Windows program isn't compatible with multiprocessor systems, you can disable one of the processors and save yourself a lot of aggravation.

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But then the question becomes, how do you get the signal from something like a sequencer into the outside world, and back in again? The most common solution is to send the track you want to process to a bus within your host software, then assign the bus to an available audio output on your audio interface (of course, this requires an interface with multiple inputs and outputs). Then, choose an available audio input on your interface, patch your hardware into it, and choose that input as the source input for a track.

However, there are two considerations. First, there will be a delay caused by sending the signal out to the interface and back in again. Fortunately, it's easy enough to fix this; after recording the re-amped track, slide the track forward in time to compensate for any delay problems. Second, you're limited to a bus approach — you can't use the effect as an insert, the way you would something like a conventional VST plug-in.

Or can you? Cubase 4 has made it very easy to integrate hardware effects, either using the bus-oriented approach or treating an external piece of hardware as an insertable plug-in. Here's how it works (Figure 4).

1. Go *Devices > Device Setup*, and check that all the inputs and outputs you want to use in your audio interface are Active and available.
2. Go *Devices > VST Connections*.
3. Click on the External FX tab.
4. Click on the Add External FX button.
5. In the dialog box that appears, name the effect, and choose the send and return configurations (*e.g.*, for a PODxt, this would be mono send and stereo return). You can also choose to create a MIDI device (and associate it with the effect) from this screen, if you want to control the effect via MIDI.
6. The new effect appears under the Bus Name column. Expand the entry by clicking on the + symbol, and also expand the Send Bus and Return Bus entries.
7. Click in the Audio Device field for the Send and Return bus entries, and choose your audio interface.
8. Click in the fields associated with the bus ins and outs in the Device Port field, and choose the desired audio interface ins and outs.
9. Close the VST Connections window.
10. Open the VST Audio Channel Settings window for the track into which you want to insert the effect, and click on the insert field to choose your external effect (it will be listed under External Plug-Ins). Remember, you're using a piece of hardware, so you can only instantiate one instance. If you want to process multiple tracks, you'll need to use a bus.
11. Click on the Activate Insert button (the little button with the international power on/off symbol above the insert field).
12. Click on the Insert Editor button. Here is where you can adjust the Send Gain and Return Gain to match levels with your external effect, as well as "ping" the external effect with a test signal by clicking on the button with the small pulse wave symbol. This allows Cubase to compensate for any delays automatically. (Note that these functions are also available in the VST Connections window; Send Gain and Return Gain have their own fields, while you "ping" by right-clicking in the Delay field and selecting Check User Delay.)

And now you have external hardware acting just like a VST plug-in — and it's not going to require any CPU power.

FIXING MUSIC COMPUTER PROBLEMS

Okay, now it's time to put on your rocket scientist hat (sorry) and solve some of the most vexing problems ever to plague a recording musician: computer/software related glitches. Nothing can take that smile off your face, or make you forget that great chorus you were hearing in your head, faster than a stubborn recording setup. So, benefit from the experience of those before you who have thrown computers against the wall in rage, and check out these ways to solve mysterious computer issues.

PROBLEM: REX file or ReWire-related issues in Windows.

SOLUTION: Recently, I tried to load a REX file into Sonar's RXP REX file player, but the file simply refused to load. Apparently, installing various programs can add copies of the REX Shared Library DLL at various places on your hard drive, creating conflicts and perhaps causing a program to use an outdated or corrupted version. Using outdated ReWire software can also cause problems. To fix both problems:

1. Go to www.propellerheads.se and click on Downloads.
2. Under Miscellaneous Updates, click on the ReWire and REX Shared Library links, then download the appropriate installers for your system.
3. Use Windows' Search function to locate all files named "REX Shared Library.dll" and "Rewire.dll."
4. Delete *all* instances of these DLLs.
5. Re-install the ReWire and REX Shared Library DLLs from the installation files you just downloaded from the Propellerhead site.
6. Re-start your computer, and all should be well.

PROBLEM: A USB audio interface (or other device) that was previously recognized no longer appears.
SOLUTION: Some USB devices are "wedded" to the port they were connected to when their drivers were installed. Either try various ports until you find the one where the USB device is recognized, or re-install the driver and, for future reference, make note of the port being used.

PROBLEM: Installing a new Windows driver for an audio interface worsens performance instead of improving it.
SOLUTION: This can happen for a number of reasons, but sometimes it can result from older drivers not being fully uninstalled. In addition to using any available add/remove uninstall routine for the older drivers, also check for hidden driver elements using the following procedure (there's more on this at http://support.microsoft.com/kb/315539; thanks to Mike Martin at TC Electronics for alerting us to this).

1. Go *Start > Programs > Accessories > Command Prompt*.
2. At a command prompt, type "set devmgr_show_nonpresent_devices=1" (without quotes).
3. Hit Enter.
4. Next, type "start devmgmt.msc" (without quotes).
5. Hit Enter. Device Manager opens up.
6. Under View, select Show Hidden Devices.
7. If you're dealing with an interface issue, expand Sound, Video, and Game Controllers.
8. Right-click on all entries relating to the old drivers and select Uninstall.
9. After uninstalling all appropriate entries, close Device Manager.
10. At the command prompt, type "Exit" (without quotes).
11. Re-boot and install the new drivers.

PROBLEM: Your FireWire audio interface works perfectly with most machines, but with some machines, you experience problems — loss of sync, dropouts, and other erratic behavior.
SOLUTION: Check the manufacturer's website for recommendations regarding FireWire chip sets. For example, many manufacturers recommend *against* using FireWire interfaces with NEC chips, but do recommend TI (Texas Instrument) and Lucent chips. (For manufacturer information with Windows machines, right-click on My Computer and go *Properties > Hardware > Device Manager*; open Device Manager and look under IEEE 1394 Bus host controller.) Also, most manufacturers recommend against using combination USB/FireWire cards; use a dedicated FireWire card. Finally, when using bus-powered interfaces, it's generally not a good idea to daisy-chain other devices (*e.g.*, hard drives) on the same FireWire port.

PROBLEM: When using a FireWire interface with Macintosh PowerPC computers, there's a strange, high-pitched, intermittent whine, and sometimes noise and garbage occurs when opening and closing windows.
SOLUTION: This has bedeviled Mac owners with any of several FireWire interfaces, especially as the problem can have multiple causes and is not necessarily consistent. However, there is an option that solves most of these problems. Go to http://developer.apple.com/tools/download and download Computer Hardware Understanding Development (CHUD) Tools version 4.4.4 (DMG). Double-click on the .DMG software, then double-click on CHUD.pkg. Install the CHUD tools, as this adds a Processor option to the System Preferences menu under "Hardware." Double-click on the Processor icon, uncheck "Allow Nap" as shown in Figure 5 (optional: cross your fingers), and odds are good the whine will disappear. (Thanks to Paul White for recommending this tip.)

PROBLEM: Adobe Audition hangs when scanning for DirectX plug-ins and will not open.
SOLUTION: A poorly-written or incompati-

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ble DirectX plug-in can cause this problem if, under Audition's Effects menu, "Enable DirectX Effects" is checked. You need to delete Audition's preferences file; this clears the "Enable DirectX Effects" option. Don't re-enable it until you've located the offending plug-in and removed it (see next tip).

Note: If you need to save custom workspaces before removing the Preferences file, close Audition and make a copy of the UserWorkspaces folder.

1. Go to Documents and Settings\[username]\Application Data\Adobe\Audition\2.0.
2. Delete everything inside the 2.0 folder.
3. Re-start Audition. It won't scan for DirectX effects and therefore will load without problems.

PROBLEM: You need to remove a DirectX effect that doesn't work properly with various programs, or may even cause programs to crash, but can't find it to unregister it.

SOLUTION: Go to www.analogx.com/contents/download/audio/dxman.htm and download the free DXMan program (Figure 6). This displays all the DirectX components in your system, and not only shows their properties, but allows you to remove them.

PROBLEM: A DirectX plug-in, either audio or DXi instrument, doesn't show up as being available.

SOLUTION: Programs recognize DirectX plug-ins by following a path to the plug-in. If that path is changed, perhaps by moving a folder or installing a program update into a different folder, that path can be broken and the plug-in has to be re-registered. To do that:

1. Go *Start > Run*.
2. Type "regsvr32" (without quotes) followed by the path to the plug-in. For example, the default path for Native Instruments' DXi instruments is C:\Program Files\Native Instruments\[instrument name]\DXi\[DXi Extension name].dll. So for example, with Guitar Rig 2, you would type (include the quotes): regsvr32 "C:\Program Files\Native Instruments\Guitar Rig 2\DXi\Guitar Rig2DXi.dll"
3. Click on OK.
4. You'll see a window saying that registration succeeded.

PROBLEM: You get a –5000 error on a Macintosh when running OS X.

SOLUTION: This relates to OS X's use of permissions; a –5000 error means the Mac thinks you are not authorized to perform a particular activity. Fortunately, this is easy to fix.

1. From the Finder, select *Go > Utilities*.
2. Open the Disk Utility program.
3. Click on your main hard drive.
4. Click on Repair Disk Permissions (Figure 7).

In fact, this is something you should do occasionally anyway — much like rebuilding the Desktop in pre-OS X versions of the Mac operating system.

PROBLEM: You have an audio program or interface that works fine with your single-processor based Windows notebook computer, but gives garbled sounds and frequent crashes with a desktop machine that has multiple processors.

SOLUTION: Your interface or program may not be compatible with dual processors, requiring you to disable one of the processors. To do this:

1. Right-click on the Taskbar, and call up the Task Manager.
2. Locate the problematic program (for an interface, it will usually be an applet).
3. Right-click on it and choose Set Affinity.
4. Uncheck all CPU entries except for CPU 0 (Figure 8).

PROBLEM: You're tired of the noise generated by your computer and hard drives, so you've built a "machine room" where you can stick all that noisy stuff. Only problem is that you need to connect USB peripherals to the computer, and it's far enough away that operation is unreliable because the USB cable exceeds the recommended maximum length of 15 feet.

SOLUTION: The Xtendex line of USB signal boosters from Network Technologies Inc. (www.nti1.com) includes two devices suitable for use with USB 1.1 peripherals. The **XTENDEX USB-C5-LC** extends a self-powered or bus-powered USB device up to 150 feet for $55; the **XTENDEX USB-C5-CE** extends up to four USB devices to 150 feet. Remote and local units connect with a standard CAT-5 Ethernet-type cable. And while we're at it, NTI's KVM line can extend mouse and video connections. EQ

Thanks very much to Phil O'Keefe for the Pro Tools-related material.

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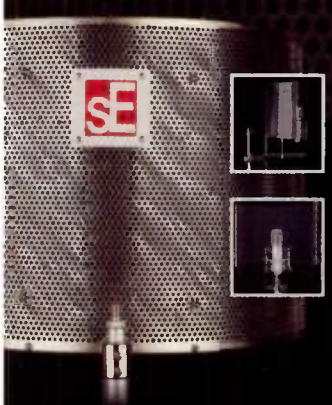

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7 STEPS TO CRAFTING KICKASS GUITAR SOUNDS

by Chris Mara

Recording truly great guitar sounds isn't easy, and adding to the challenge is the fact that there are many ways to get it right, or get it wrong. Nonetheless, there are some common denominators to address when it comes to getting really good tones. So, for all you Loverboy fans out there (you know who you are), we're going keep it real and start from the start.

1. TAKE CARE OF YOUR TOOLS.

This may seem a little obvious, but your foundation is a good-sounding rig — from top to bottom. Never attempt to track without having your guitar intonated and strung with strings that haven't celebrated a birthday. Put a tuner in line, and use it . . . a lot. Nothing ruins a good guitar tone faster than your doubled (or tripled, or quadrupled) track being out of tune with your first track. All the session players down here in Nashville are constantly tuning between takes, so make it *your* habit, as well.

2. DIAL IN A GOOD SOURCE SOUND.

Good corn grows from good dirt (or whatever they say in Iowa), so take the time to get a sound you like out of the amp first. Start at the source, and then task yourself with capturing that tone accurately. Excess volume isn't always the key. If anything, high volume levels can exaggerate speaker cabinet and room idiosyncrasies that you may not want to hear. As you tweak the amp's EQ section, think of the operation as adjusting a shower: To get the temperature just right, you might need to just take a little cold water out of the equation, instead of just adding more of the hot. Sometimes, a little more volume and a little less low end will result in a more present sound. But always work with your EQ at a reasonable level (think bedroom volume, not show volume), and prepare a studio sound with your setup before it's time to record. Finally, grab some masking tape and a felt-tip pen, and mark your settings.

3. SET UP MULTIPLE MICROPHONES.

The next step is to put some mics in front of this beastly sound machine you've wrangled. Your mind is probably already zipping through your dream mic list, but please resist the urge to set up 9 million different mics and signal paths. All you'll do is A/B yourself well into your retirement, so cut to the chase by keeping it simple. If you're not careful, you'll create too many options to wade through, and you'll risk losing the perspective of what *good* really is.

There are just as many ways to mic a guitar cabinet as there are guitars to play, but here's what I like to do: Start with a Shure SM57 and either an AKG C12A (which is *not* the same as a C12) or an AKG C414. Place both mics right on the grille cloth, and close to the speaker. Run the two mics into your mic preamps, and then route the two signals to a single output bus on your mixer. Now, run the combined signal through a compressor — I prefer the dbx 160vu — and then to an EQ. (The API 560 works for me, but use whatever works.) Check out Figure 1 for the signal path if you need a better idea on how this all works.

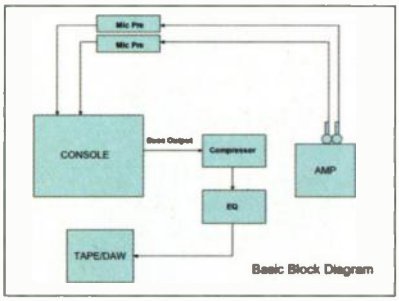

Fig. 1. Chris Mara's complete signal chain manifesto: two mics and two mic preamps, bused together, and sent out to a compressor and an EQ, and, finally, down to your recorder.

Generally speaking, I like to get my sound from the blend of the two mics. (If I need something more, I'll tweak the amp and/or mic placement *before* EQing.) Once I get this all happening and I'm smiling, I'll usually set up a room mic — such as a large-diaphragm condenser set to an omni polar pattern, or even another SM57 set back a couple of feet from the amp. I'll run the room-mic chain just as I've done with the other two mic signals, as shown in Figure 1, blending in the room-mic perspective with the other two mics to hear what it brings to the table. Be careful — a little of the room mic in the blend goes a long way. I like to hear just a bit of what the room mic picks up, and I'll use it sparingly for more ambient verse parts, or to kick up a face-melting solo.

4. GET IN PHASE.

When employing multiple mics, always check the phase coherency of the signals by popping each mic in and out of phase while listening for any loss of bottom end, or serious comb filtering (where a delayed signal — as sometimes produced by two mics positioned at the same source sound — reinforces itself, causing frequency anomalies). If you hear something you don't like, move the mics back and forth until you discover a sweet spot that produces a strong, robust sound.

5. GO EASY ON THE COMPRESSION.

A little compression goes a long way for electric guitars — especially on heavy rhythm parts. Think about it. Between your pedalboard, your vintage tube head, and the natural speaker compression, things are pretty much smoothed out by the time the signal even gets to the compressor. So easy does it — more dynamically interesting guitar sounds never hurt anybody!

6. SUBMIX.

I recommend getting the blend you want, and recording the resulting take to *one* track. This simplifies life during mixdown, saves tracks and CPU power for the rest of the project, and encourages you to work those decision-making muscles.

7. THINK BIGGER.

If one guitar sounds great, two might just blow your mind. So double that thing up! But don't fake it by copying and pasting your first take onto a duplicate track and applying a bit of delay — or nudging the waveform forward to give the *impression* of a doubled guitar — actually replay the part. Tweak your gain and/or the EQ on your amp a bit, and change the mic placement a tad to give your second track its own sonic identity. And get your lighters ready, because you'll have them lit and above your head midway through the first chorus. And if two guitar tracks was good to you, see if a triple can change your life forever! EQ

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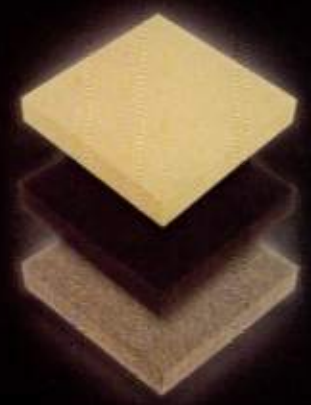

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10 TIPS FOR GETTING THE MOST OUT OF YOUR PEDALBOARD

by Phil O'Keefe

1. SET A TUBE AMP'S GAIN TO WHERE IT'S JUST STARTING TO BREAK UP, THEN SLAM THE FRONT END WITH A BOOST PEDAL.
This delivers instant crunch, and a whole new world of overdrive tones from your amp. I particularly like the HBE Germania, as it can be set as either a treble booster or as a full-range boost for extra tonal options. EQ and overdrive pedals with the gain turned down, and the volume knob turned up, can also provide suitable boosts.

2. RUN MULTIPLE GAIN STAGES.
If one dirt box is good, why not two — or even three? You can achieve a lot of unusual colors by running multiple overdrive and distortion pedals simultaneously, and experimenting with different settings.

3. USE A WAH AS AN EQ FILTER.
You might be surprised by how many guitar tracks have been recorded with a wah pedal "parked" in one position for the entire track. Engage the wah, and slowly sweep the pedal until you find a setting you like, then leave it.

4. BYPASS NOISE AND TONE-SUCKING ISSUES.
Got a pedal that you love, but it's noisy or sucks tone when bypassed? Use a true bypass looper pedal to take it out of the signal path completely when not in use.

5. RUN THE OUTPUTS OF A STEREO CHORUS OR DELAY TO TWO DIFFERENT AMPS.
But be warned: Once you go stereo, you may never go back.

6. IF YOUR EFFECTS HAVE EXPRESSION PEDAL JACKS, USE THEM.
On my Diamond Memory Lane analog delay pedal, an expression pedal lets me adjust the amount of feedback on the fly. On my Line 6 MM4 Modulation Modeler, it allows switching between a slow and fast rotary speaker setting, or adding a little vibrato on key notes in a phrase. Why take a static, "set and forget" approach when you can have far more expressive effects?

7. LOOK FOR LESS OBVIOUS FEATURES, AND EXPLOIT THEM.
Another Memory Lane feature I really like is the ability to plug a 1/4" TRS to dual 1/4" TS "insert cable" into the expression pedal jack, and use it as an effects loop to process the delayed signals with other effects. Flanged echoes anyone? Or maybe you'd prefer clean original notes, with distorted and bandpass filtered echoes? No problem.

8. TWO DELAYS ARE BETTER THAN ONE.
Run one delay for short slapback echoes, and a second one for longer delays — either to separate amps, or in series. If your delays offer tap-tempo controls, you can quickly set different rhythmic values for each delay, resulting in some exciting polyrhythmic echos.

9. DON'T GO OVERBOARD.
Use your effects musically, and not just as gimmicks. Sure, sometimes a part calls for something over the top and crazy, but, many times, the music is better served with something more tasteful and subtle. And, sometimes, the best "effect" is just a guitar plugged straight into an amp.

10. CRUISE ONLINE FORUMS.
I get a lot of ideas and suggestions from my friends on the Harmony Central Effects forum — everything from tips on effects order to board-building ideas to the cool pedal of the month. You should also check out the *EQ* and *Guitar Player* magazine forums for inspiration and help. My wallet may be thinner as a result of all the gear talk, but I've learned a lot. EQ

For an aggressive and organic roar, brutalize the front end of your tube amp with a clean-boost pedal, such as the HBE Germania.

BUILD A LILLIPUTIAN AMP/ISO CHAMBER COMBO

Most guitarists know that Jimmy Page recorded much of the mammoth guitar sounds on *Led Zeppelin* by plugging into a tiny Supro amp. For many players, this was the first lesson that big guitar sounds don't necessarily come from snarling Marshall stacks or other high-wattage monsters. Never one to let go of a great idea until it's pushed to its most ridiculous apex, I endeavored to not only plug into an ultra-teensy amp, but also to build a mini isolation chamber to record it in. The kick is that this setup can actually produce some unique guitar tones. Here's how it works.

DOWNSIZE. Get yourself a "toy" mini amp. To capture some punchy grit, I went with a Fender Mini Tone-Master ($32 street), but many other models are available.

ISOLATE. Buy a 21.5"x15"x12" plastic storage bin with a double-hinged top from Home Depot for around $6.99.

ACCESSORIZE. To simulate a variety of acoustic environments inside the bin, purchase some squares of carpet, linoleum, mirror glass, and wood. Place the materials at the bottom (or sides) of the bin in any combination to produce a dead (carpet), live (glass or linoleum), or live/dead (all) recording "space." I grabbed my bits and pieces at Home Depot for under $30.

RECORD. Place your favorite dynamic or condenser microphone inside the bin with the mini amp — I perched mine on a Radio Shack Desk Mic Stand ($9.39) — and trail the mic and guitar cords out the top. Crank up the mini amp, move the mic until you hear something fabulous, and close the lid. (Using a $69 Crown Sound Grabber II PZM presents some interesting sonic options, as you can simply lay this "boundary mic" on the bottom, or against the sides of the bin.) To deaden some of the roar, wrap a packing blanket around the bin. I "borrowed" mine from my mom, but honest types can purchase one for about $15.

I've produced some really cool guitar textures and ear-candy parts with this wee setup without adding significant noise pollution to my living space, or spending more than ten minutes dialing in sounds — and all for less than $79 (mics not included). It's also a great mobile-recording rig, because all the goodies fit in the storage bin. —*Michael Molenda*

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5 BASS AMP CHOICES FOR SUCCESSFUL STUDIO SESSIONS

by Scott Rottler

In a time when it seems as if every kid has an earth-rattling car stereo system emanating deep and low bass sounds on every street in every town, those of us who record have been forced to change the way we approach the bass in our mixes to compensate for the overly compressed, blown-out bass sounds demanded by many modern hip-hop and rock styles. Thankfully, there's a way to get a nice, clean, punchy bass tone that will make the mix go boom without sounding clunky by foregoing the direct approach (*i.e.*, recording bass through a direct box) and miking up a damn good amp.

Our bass sounds are first determined by three variables (what I call The Three As) before the red record light illuminates: the Artist, the Axe, and the Amp. We'll assume we've settled on the artist (you) and probably the axe (that great old Fender Jazz Bass you missed many a meal buying), so what amp should you choose when recording your instrument to make sure your low end is tight and clean? In my experience, these four amps are perfect go-to choices for making sure your low end isn't weak before it hits the mix.

AMPEG B-15R PORTAFLEX COMBO

The B-15N combo was one of the leaders of the pack when it came to those great '60s bass tones of old. Retooled a bit for current times, the B-15R comes with a 100 watt head outfitted with four 6L6 Groove Tubes (the B-15N has two 6L6s, and a lesser wattage) and a custom 15" speaker — which gives it a respectable volume and a pleasing, rich, smooth tone that's great for recording purposes, whether you are looking for that classic rock, modern rock, hip-hop, or country sound.

AMPEG CLASSIC SERIES SVT-CL HEAD + B-410 HLF CABINET

The original Ampeg SVT is a true classic, a total tone monster, and the SVT-CL is a more than worthy reissue. Match this up with a B-410HLF (also one of the big dogs from the golden years), and you're looking at a timeless bass sound. Delivering 300 watts RMS, based around its preamp tubes (two 12AX7s and one 12AU7), its driver tubes (two 12AU7s and one 12AX7), and its power amp (six 6550s), the SVT-CL is *huge* in every sense of the word. With the B-410 HLF and its 4x10" array of 4Ω drivers as its companion, and you're looking at devastating low end with a superb top that cuts through even the busiest mixes. From contemporary metal to classic sweetness, a punchy blues or a smooth jazz, this amp and cab combo will get you great sounds in the studio every single time.

EDEN WT800B HEAD + D410XLT CABINET

The powerhouse Eden WT800 World Tour head (billed as one of the greatest live amps, but also a personal favorite for the studio) consists of a tube hybrid stereo amplifier with a "conservative" 400 watts per side into 4Ω. If you're looking to move some serious air, this is the head for you. Match it up with the D410XLT 4x10" dual port enclosure, and you're left with an incredibly aggressive sound that amply translates the sound you've chosen for your live performance into the mix. This is an incredibly versatile combination that works particularly well for slapping/popping funk style bass, and killer hip-hop tones.

FENDER BASSMAN 50 HEAD + BASSMAN 410 CABINET

The world renowned king of the "British Invasion" bass sound, the original Fender

Bassmans have been pushing quality low end for decades, and been largely unchallenged in their field. This piggy-back design with separate cab (the Fender Bassman 410 is my recommendation) sports two 7025 preamp tubes, a 6L6GC power tube, and two 12", 4Ω speakers; together, they offer a crystal clear, yet in-your-face sound. And the best part? The head has a nice overload compression that gives wonderful sustain. For classic sounds, be they rock or blues, this amp is sure to put your sessions sonically over the top.

GALLIEN-KRUEGER 2001RB HEAD + 410RBH CABINET

To my ears, this is the total rock package. With its dual 540 watt woofer amps at 2Ω and its built-in distortion circuit (that sounds *so good*), the 2001RB gives you near-perfect growl and serious drive. Set it up for a date with the 410RBH cab, with its 4x10", 4Ω GK cast frame woofer and GK tweeters, and you'll get a deep, floor-shacking warm sound that works especially well in bass-heavy bands, from reggae to hard rock to rap.

CAPTURING THE SOUND

With 2" tape easing its way out as the recording medium of choice in today's digital arena, picking the proper mic for the job is especially key. Why? Because where tape used to naturally accentuate that sweet low end and help round out our bass sounds, unfortunately digital media does not flatter our sound in any way.

Now mic choices and placement are — like your drummer, your bass, and your amp — definitely things you have to play with to get the song down right. I recommend starting off with a quality dynamic that can handle your frequencies faithfully. So, stay away from the guitar player's go-to Shure SM57s and look into throwing an AKG D-112 or Sennheiser 421 up on your bass cab, noting that the closer you place the mic, the more exaggerated your low end will be (*i.e.*, the result of a mic's *proximity effect*).

Start with the mic about 2" off the cabinet's grille, pointing directly at the speaker. Then move the mic back until you achieve the desired tone. Post-mic, I prefer to use tube preamps, as they help round out the transients and smooth out the low end. After that, it's a good idea to insert a compressor into the signal chain (I love the Universal Audio 1176) set at a 4:1 ratio with a medium attack and a fast release. Keep in mind when setting your release not to set it too fast, or you will start to hear the low end "pump," and your track will most certainly suffer. —*Scott Rottler*

DAVID COLE ON AVOIDING BASS-BUTCHERING PHASING ISSUES

"A lot of engineers like to run DI and miked-amp signals simultaneously when they record bass," says David Cole, producer of Melissa Etheridge, "but if you do that, you're probably going to have phase problems. The DI has the signal moving through its electronics, while the mic is picking up the actual movement of the speaker after it travels through the air. As a result, the mic track will be delayed compared to the DI track, and the timing differences between the two signals can screw with your low end.

"An easy way to rectify this situation is to open up whatever program you are recording in, and zoom into the waveforms for your bass tracks. Then, highlight your miked bass amp track, and slide it ahead in time so that the waveform lines up with your DI track. This will make a huge difference in your sound, because the low-end impact is much greater when the two tracks are in phase." —*Jeff Anderson*

David Cole

GETTING THE MOST OUT OF MIDI

by Craig Anderton

Created back in 1983 amid choruses of "it's just a passing fad," MIDI (Musical Instrument Digital Interface, a protocol that translates performance gestures like playing notes and bending pitch to data messages), looked like it was on the wane in the '90s. Audio recording was on the ascendancy, and it seemed to make more sense just to record an instrument's audio out rather than record a performance, feed it into an external keyboard, then send that keyboard's audio output into a mixer during mixdown time.

But with the advent of plug-in virtual instruments, MIDI has gained new life as the protocol that triggers software synthesizers. So now, we're in the unusual position of having MIDI be something new and different to people who weren't even alive when it was born. Let's investigate some of the most important highlights of this protocol, and how to apply it in today's recording world.

VIRTUAL VS. OUTBOARD MIDI INSTRUMENTS

You may have heard complaints about MIDI being slow, and horror stories of MIDI delay. But this is true only when the computer is driving *outboard* MIDI gear, because MIDI is a serial protocol where a new piece of data gets sent out every millisecond or so. When a computer sends MIDI to an external sound module, the data has to exit through a port (interface), be scanned by the keyboard, interpreted, and turned into a sound. Virtual instruments bypass all those issues because the MIDI data is flying around inside the computer, so timing is extremely tight.

ABOUT MIDI RESOLUTION

However, computers have limits, too. Running lots of virtual instruments will test those limits, with one potential result being "loose" timing. MIDI timing resolution is specified in PPQ (pulses per quarter note). Early hardware MIDI devices had as little as 24 PPQ resolution, with computer-based sequencers opting for resolutions of 96, 192, or 240 PPQ. The lower the resolution, the less the computer has to work. To accommodate older computers, some programs let you specify lower timing resolutions. As computers evolved, resolutions of 960 and above became common.

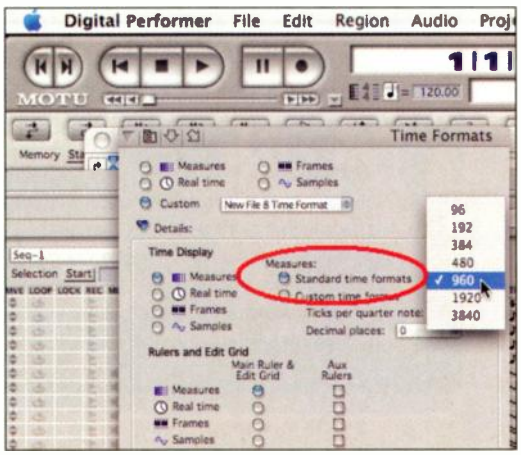

Fig. 1: Digital Performer records MIDI internally at an extremely high resolution, so you don't have to work with huge numbers while editing, and lets you display the resolution in whatever PPQ value you find most comfortable. Here, 960 PPQ is being selected.

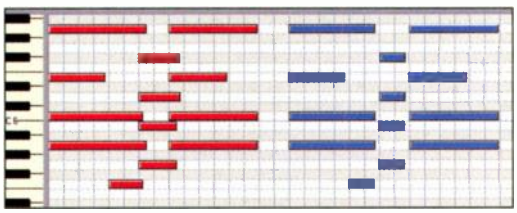

Fig. 2: Trimming the ends of notes to prevent overlap can conserve polyphony, and place less load on your computer's CPU.

Modern computers are powerful enough that many programs simply record at a high level of resolution; for example, Digital Performer records at 10,000 PPQ. However, editing notes at this level of resolution can become unwieldy, so DP allows you to change the way resolution is displayed. If you're used to 480 PPQ resolution, for example, you can see note timings displayed that way; if you're switching to DP from another program and are used to a different resolution (*e.g.*, 960 PPQ), you could choose that display instead (Figure 1).

LIMIT POLYPHONY

Nothing sucks CPU power faster than playing back lots of voices from a soft synth. As a result, look at the MIDI data stream and see if there are places where notes are playing back unintentionally at the same time.

Figure 2 gives an example of a pad part. Notice how the red notes from held chords "hang on" past the onset of the next held chord. Even though each chord plays only four notes, during that transition eight notes are playing. Trimming the ends of the notes, as shown with the blue notes, prevents this situation from happening, unless you've programmed a lengthy release time so that the note sounds even after you've let your fingers off the keys. In this case, consider using reverb or delay to extend the decay, so you can shorten the release time.

CPU SALVATION THROUGH FREEZING

We're not talking cryogenic cooling of your processor, but rather, a sequencer or DAW's "freeze" function. Freezing takes advantage of the fact that, thanks to high-speed/density hard drives, modern hard disk recording programs can run dozens, or even hundreds, of audio tracks without breaking a sweat (unlike soft synth tracks, where you'll be lucky if your computer can handle more than a dozen or so in a complex project). So, the freeze function implements a two-step process: Convert the soft synth's output to a hard disk audio track, then "disconnect" the soft synth from the CPU.

Different programs handle this differently. For example, some programs can't really do anything with the frozen track, while others let you move it, or perhaps let you change signal processing being applied to the track, even though it's "frozen."

Those with older hosts that can't freeze, or have newer programs without a freeze option *per se* (Figure 3), can nonetheless enjoy the benefits of unloading soft instruments from the CPU — and still be able to edit them later if needed. Here's the procedure.

1. If audio effects plug-ins process the soft synth and you want to freeze these too,

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leave the processors enabled. If you'd prefer to insert them in the frozen track later so you can edit their settings and process the frozen audio, bypass any instrument track processing plug-ins.

2. Solo the soft synth (this usually requires soloing the audio track that the instrument plays through and the MIDI track driving the instrument). With a multi-timbral synth, if you want to freeze each instrument separately, solo the MIDI track feeding an instrument, freeze it, then move on to the next instrument. Otherwise, freeze a premix of all instruments.
3. Play back the soloed track all the way through the song, and adjust its level to the maximum level short of distortion.
4. Bounce (render) the soft synth to an audio track. If there's no obvious bounce function, then send the synth output to an audio track and record it. Another possibility is to assign the synth out to a bus, then use that as an input to a track that can record the bus out; or export the soft synth track as an audio file, and import it back into your host.
5. Play back the bounced or recorded track to verify that it sounds the way you want.
6. If you didn't freeze any effects along with the instrument and want to process the frozen track, copy the effect from the original track and insert it into the bounced track. If you can't copy it, then save the effect settings as a preset, insert an instance of the effect into the bounced track, and load it with the preset parameters.
7. Save the patch and any samples for the soft synth whose output you bounced, write-protect or lock the MIDI track that drives the synth (you'll need it again if you want to do additional editing, and MIDI tracks consume virtually no computer resources), then document which instrument you used, which patch, and which MIDI track drives it. You'll want this info if you need to edit the track later.
8. Delete the instrument plug-in from its track. Bypassing/muting the instrument isn't enough, because most programs assume that you want the instrument to play back *instantly* if you disable bypass or mute, so they leave it "attached" to the CPU.
9. If you need to do additional editing, re-insert the soft synth into its audio track, load the appropriate patch (and samples, if applicable), and make sure the companion MIDI track is assigned to the instrument. Mute the "frozen" hard disk audio track you bounced previously (or delete it altogether, as you're going to be changing it anyway), make your tweaks to the soft synth's MIDI track, and if needed, freeze again after doing your tweaks.

Fig. 3: Although Sony Acid 6 doesn't have a function called "freeze," the program makes it easy to render a soft synth's audio to a new track. Just solo the MIDI track driving the soft synth, select Render to New Track, and the soft synth audio shows up in a track added to the end of the project. You can then delete the soft synth to save CPU power.

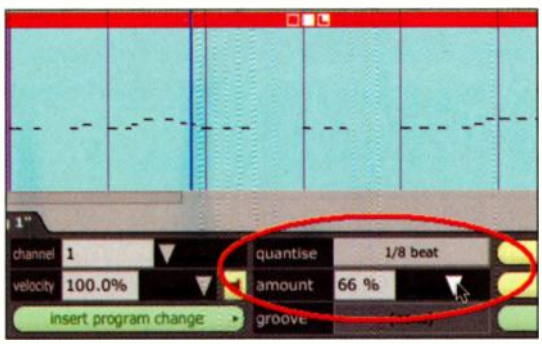


Fig. 4: In this Tracktion project, the MIDI track is being quantized to eighth notes, with 66 percent quantization strength (amount).

"MUSICAL" QUANTIZATION

One of the early complaints about MIDI music was that it sounded sterile and mechanical, but that was largely because too many musicians went nuts with a sequencer's quantization option, which shifts note attacks to the nearest specified rhythmic value (*e.g.*, 8th note, 16th note, etc.). Real music doesn't work that way; musicians tend to play *around* the beat a lot, not just *on* it.

However, most sequencers have a *quantization strength* option (Figure 4). This moves notes closer to the specified rhythm by a percentage, rather than creating a rhythmically perfect part. For example, if a note hits 6 milliseconds ahead of the beat and you quantize it to the beat with 50 per cent strength, the note will end up 3 milliseconds ahead of the beat. This tightens up the rhythm without strangling it.

FREE BACKUP VIA SYS-EX

If you use outboard MIDI gear as well as (or instead of) virtual synthesizers, you can almost certainly save its patch information via the use of system exclusive (sys-ex) data, which emanates from the instrument's MIDI out jack. Furthermore, most MIDI sequencers can record this data, and even store it into a track and play it back automatically at the beginning of a song. You don't need to save patches in your synth, use memory cards, or employ any other messy techniques: Just back up your data as part of your song.

With longer sys-ex messages or certain hosts, you may need to save the sys-ex data as a separate bank, then send it manually to the outboard device. No big deal; it's still pretty convenient.

Note that many sequencers default to ignoring sys-ex while recording, as these can be fairly large packets of data and there's no point in recording unneeded data. So before trying to record sys-ex from an instrument, make sure that sys-ex recording is enabled; disable it again when you're done. EQ

AN INTRODUCTION TO MIDI DRUM CONTROLLERS

by David Miles Huber

As recording musicians, we usually strive to pack as much humanity into a performance as possible, thereby making music that sounds less rigid and mechanical. An obvious way to add a human touch to a MIDI-sequenced performance is to spice it up with acoustic instruments that are actually played live. However, if this isn't an option, you can always perform parts into a project using a MIDI controller that translates the physical performance gestures of a played performance into MIDI data suitable for recording into a DAW (and/or driving a tone module or virtual instrument).

This is particularly appropriate for drums and percussion, as *how* a drummer plays a rhythm adds an incredible feel to a song. And, fortunately, there has never been a better time to make use of standard and alternate MIDI drum controllers. With all of the available hardware instruments, software instruments, soft-production tools, and plug-ins, there's an ever-increasing range of cost-effective tools suitable for both stage and studio.

However, an equally compelling reason for controlling sounds via MIDI is the ability to capture the MIDI track, edit it, and add processing during mixdown. If you flubbed the timing, hit a wrong note, or just want to change the sound after-the-fact, an editable MIDI track just might be able to save your session.

TYPES OF DRUM CONTROLLERS

Drum controllers come in all sorts of sizes and functional flavors. Soon after buying a keyboard synth, players found that a standard music keyboard could let you trigger the various sampled sounds of a drum set. This is probably the most commonly used device for triggering percussion and drum voices, as keyboards are almost always available. Furthermore, you can trigger sounds quickly and easily using fast finger movements that don't require full hand/wrist motions. The downside is that keys don't provide a playing surface that mimics a true drum or percussion setup.

Another popular type of control surface is the drum machine-type button pad layout. These are found on drum machines, Akai MPC samplers, newer keyboard controllers such as the VX Series keyboards from CME, and various dedicated drum controllers (see sidebar). While these surfaces make it easier for the budding drummer in all of us to pound out a beat with our fingers in a way that makes percussive sense, the playing surface is often small, and it can sometimes be a pain to let your fingers do the walking.

Fig. 1: The Alesis ControlPad offers eight relatively larger, rubberized pads with a feel that's inviting to drummers and non-drummers alike.

In more advanced MIDI-based music, it's often necessary for a drummer or percussionist to use a surface that can be played like a real instrument. In these situations, a dedicated drum pad controller is generally the best tool for the job. These larger, rubberized playing surfaces (which often have eight or more velocity-sensing playing pads) are designed to be played with the fingers, hands, percussion mallets, or drumsticks in a way that's comfortable to drummers, but can also help bring out the beat-meister in non-drummers. Furthermore, these pad controllers can serve as standalone devices, or incorporated into a traditional kit by placing the controller on a snare stand or drum mount.

One of the newest and most cost-effective pad controllers to hit the market is the ControlPad from Alesis (Figure 1). This thin, USB bus-powered system is a good example of how a controller can add greatly to a setup. Additional inputs for kick and hi-hat let you build up a kit around the controller, and two extra inputs can accept triggers from any number of sources.

Full electronic drum kits are also available that offer most, or all, of the drum and percussion surfaces of a full kit. Roland has been particularly prolific over the years in this field. But again, Alesis deserves special mention, as their DM5 Pro kit (Figure 2) just brought the price of such a beastie

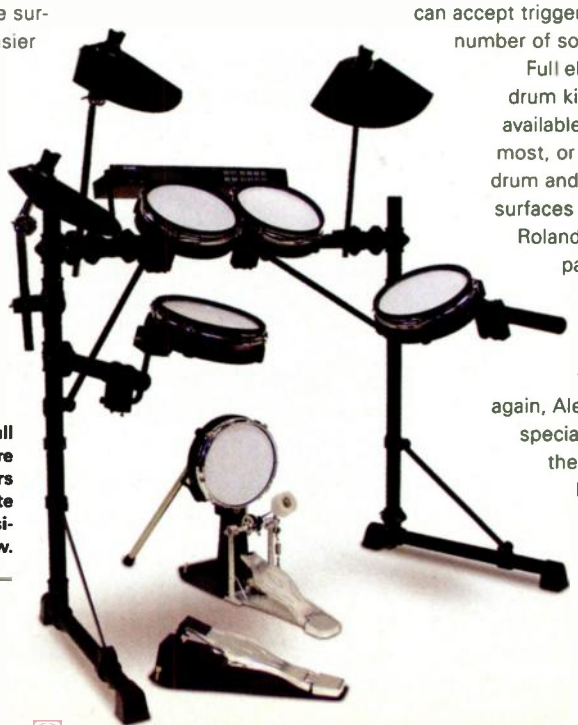


Fig. 2: While a full kit takes up more space, drummers often appreciate the extra physicality they allow.

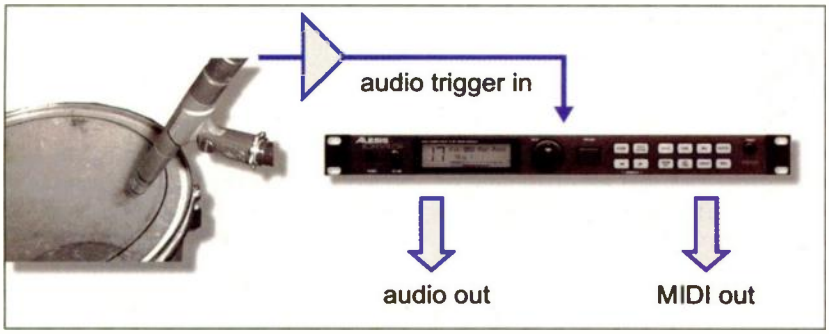


Fig. 3: Trigger inputs can usually accommodate acoustic signals, typically from a high-output mic or piezo transducer, and use these to generate sounds and/or create MIDI triggers.

down to $799 retail.

And these aren't exclusively studio tools, either. For those who need to rehearse in cramped quarters, or deal with noise-sensitive neighbors, electronic drum kit controllers are a simple way to solve acoustic problems.

TRIGGERING SOUNDS

Taking techno-realism even further, real drums can be MIDI-fied in a number of interesting ways that expand on what standard drums can do. While incorporating drum pads into an acoustic drum set can blend the power and sound of a traditional kit with the versatility, unique sounds, and sequence capabilities that MIDI has to offer, trigger technology can add sounds and textures to a traditional drum set that might not be possible otherwise.

Triggering makes use of a transducer (such as a mic, contact pickup, or piezoelectric transducer) to change an instrument's acoustic energy into an electrical voltage that gets translated into MIDI messages. These can then drive a MIDI instrument, thus triggering sounds or samples (Figure 3).

As the trigger source is an electrical signal, the original audio source can be almost anything. For example, a miked snare could trigger a lower-pitched "monster" snare. Alternatively, you could replace or augment a previously-recorded snare track with a triggered sample that's more appropriate. (If the tracks were recorded to a DAW, plug-ins such as WaveMachine Labs' Drumagog are ideal for augmenting/replacing drum tracks in the software environment.)

If you get the idea that these systems can be extremely flexible, you're right — this type of production work definitely comes under the "use your imagination" category. However, taking full advantage of these setups can get fairly complicated, involving multiple setups that can be recalled using program changes to alter surface velocities, sensitivity controls, MIDI channels, and note mappings in a way that can completely change a system's setup between songs.

DON'T MISS A BEAT

When using MIDI controllers, it's a smart move to *always* be in record mode whenever someone is playing. After all, there's no easier way to capture a performance. You don't have to adjust levels, set up mics, or worry about hard drive space. MIDI is extremely compact, as you can record hours of MIDI data in a few megabytes of space. And, as you never know when you might play something that will become a riff in a hit tune, you'd better be prepared! EQ

DRUM PAD CONTROLLER TIPS

Integrating smaller pad controllers (like the ControlPad) into a standard drum setup allows drummers to trigger loops, play sound effects, trigger sustaining background drones, and more. When used in conjunction with a good sampler, a control pad can also trigger drum sounds from instruments that are too much of a hassle to take to the gig, such as a tympani or world music percussion. And if you want a *really* wild bass part, program a pad controller to play the notes of a scale in the bass range, and let the drummer flail away. The bass line you'll hear will almost certainly be very different compared to what a bassist would play.

Another great application for pad controllers is when you want a sequencer to follow the drummer, rather than locking the drummer to a click.

Suppose you've recorded a song without a click, and you really like the feel, but you'd also like to overdub some loops. Have the drummer play a simple, obvious sound (like a clave sample) on the beat, into a separate track. You can then use tools such as Pro Tools' Beat Detective or Sonar's AudioSnap to create a tempo map that follows the clave hits.

MIDI effects can process the triggers from drum controllers, opening up even more possibilities. These effects are just some of the ones included in Cubase 4.

Also, don't overlook the wealth of possible options when playing a MIDI drum controller through MIDI processors (also called MIDI plug-ins or MFX, as found in programs like Digital Performer, Cubase, Logic Pro, Sonar, and others). For drums, delay effects can add syncopation and flams, and arpeggiation can, depending on how your kit is laid out, create highly unusual effects as a single note "ripples" through a bunch of drum sounds. And for melodic applications (such as tuned percussion), MIDI plug-ins that can derive chords from individual note inputs are quite common.

Wannabe drummers can find other reasonably-priced, compact options, such as the Korg padKontrol, M-Audio Trigger Finger, and Akai MPD24. All of these are designed more for finger drumming than using drumsticks, although if you play with a light enough touch, you can usually get away with sticks, as well. —*Craig Anderton*

SETTING PRECISION-TIMED VOCAL DELAYS

by Jeff Anderson

You're hearing it everywhere these days — vocal tracks processed with timed (or rhythmic) delays. It's a great effect, but it must be done right, because if the rhythm is the least bit off, the delay will step all over your mix, and make you sound like a total amateur. But if done right, the echoes can sit in perfect time within the mix, and add a rhythmic element to an otherwise bland vocal track. So how do you do it right? Keep reading.

DOING TIME

First, determine the tempo in bpm (beats per minute) of the section of the song in which you want to add delay. If you're not locked in precisely on the tempo, you are really just fumbling in the dark, trying to approximate the right delay-time setting, and, more likely than not, defeating the purpose of adding delay.

Many people don't record to a click track, as they feel it takes away the rhythmic ebb and flow that a "human" rhythm track imparts to a song. However, if you want to add synchronized effects, a click is pretty close to essential.

But even if you didn't record to a click, here are some options. Using Beat Detective in Pro Tools, you can click along on the tap feature to the rhythm of the section, and quantify your tempo.

If your DAW software doesn't have a similar feature, there are pieces of hardware, such as the Behringer BC100 Beatcounter (which you can find for a whopping $7 online) that can help you quantify bpm by manually tapping the pad along to the tempo of your track. Other options include the T.C. Electronic M300 and the Lexicon MP110. Both units come with tap-tempo buttons that help you set the tempo, as well as all the requisite delay settings you'll need to get your vocal delays sounding great (and occurring in time).

PLUG IT IN

Now that you know the bpm of the section you want to delay, open your delay plug-in, and assign the effect to your vocal track. The first variable control you should focus on is the input volume to the plug-in. I advise not

SOPHISTICATED DELAY TECHNIQUES FOR THE SONICALLY ADVENTUROUS

Most people are content to set a delay time and let the delay do its thing. But you're not most people. You're an inquisitive *EQ* reader who wants to expand your existing sonic boundaries, and here are some ways to do just that.

Strategic Echoes. You may not want echoes to occur on every part of a vocal — particularly if there are sections where the vocals are extremely dense. For example, you may just want to echo one or two strategically important lyrics at the end of a line, or just the words that occur before a space in the vocals. Here's the easiest way to accomplish this effect.

1. Clone your vocal track to create a second track with the same levels, send control settings, EQ, pan, and the like.
2. Erase all the vocals from the cloned track.
3. Insert your delay plug-in into the cloned track.
4. Split your vocal at those places where you want to isolate a particular section. For example, if you want to echo a single word, split the vocal before and after just that one word (see Example 1).
5. Drag the split section out of the main vocal track, and into the cloned track.

On playback, the straight vocal will play through as normal, but when the word appears that you want echoed, the cloned track will play back through the delay. Beautiful!

Echoes *à la carte*. Most delay devices are dumb. Once set up, they'll produce echoes at a certain rhythm, and that's the end of the story. But what if you want overachieving echoes? For example, one that hits an eighth note later than the main vocal, but appears in the left channel only with a "telephone voice" EQ, followed by an echo that hits a measure later in the right channel only with a huge amount of reverb? Time to cut, paste, and copy. Here's how to do this example.

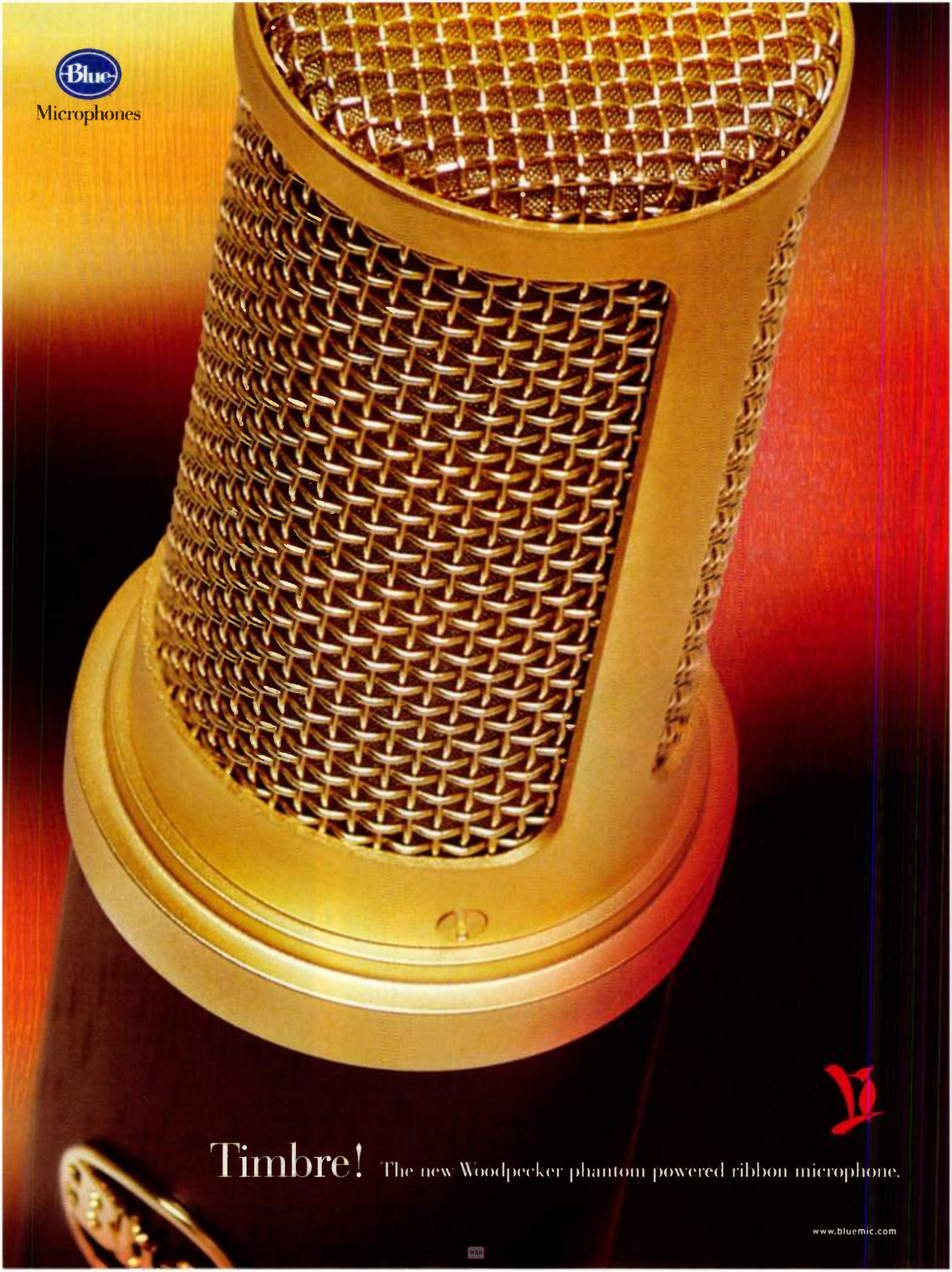
1. Clone the vocal track you want to delay.
2. Shift the timing of the entire cloned track so that it's one eighth note later than the original track.
3. Pan this cloned track to the left.

Ex. 1: The original vocal (upper track) has had one word cut, and shifted to the cloned track (lower track). This cloned track has a delay plug-in so that only the one word is echoed.

4. Insert an EQ plug-in to give the telephone voice effect.
5. If necessary, cut away those sections of the track you don't want echoed.
6. Adjust the cloned track's level so it fits comfortably in the background.
7. Clone the original vocal track again (we'll call this "Clone 2").
8. Shift the Clone 2 track a measure later than the original track.
9. Pan Clone 2 to the right.
10. Insert a reverb plug-in into Clone 2, and dial in the desired amount of reverb.
11. As with the first clone, if appropriate, cut away those portions of the track you don't want to delay, and adjust the level as desired.

The only real downside to this approach is that if you want to create the effect of echo feedback, you'll need to clone the clones, and adjust their levels. For example, if you want the track delayed by an eighth note to hit three successive times, you'll need to clone the delayed track two more times, shift them as appropriate, and lower the level on successive tracks.

However, also note that this approach lends itself to a variety of other cool effects: Echoes that are *louder* than the original signal, polyrhythmic or non-rhythmic echoes, or even "gapped" echoes (for example, echoes that are delayed by 1, 3, 4, and 7 eighth notes). The sky's the limit. —*Craig Anderton*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VOCAL CORDS

SETTING PRECISION-TIMED VOCAL DELAYS

to alter the volume of your vocal track, as there really is no reason to make that kind of decision before you get to mixing. So, leave it set at zero and move on.

HOSE IT DOWN

Next, move on to the "mix" feature, or whatever your wet/dry effect control is labeled. This option lets you adjust the amount of effected sound you hear, so if you set your wet mix at 90 percent, you would be hearing almost all effect, and very little of your original dry vocal. Typically, I recommend starting at around a 25 percent mix so that you can hear the delays, but they don't overpower the singer. Still — unless you are really trying to avoid subtlety — this is probably a stronger wet signal than what you will ultimately end up using.

A QUICK PASS

After setting the amount of delay you want to add to your vocal track, you may want to engage a low-pass filter that's either part of your plug-in (such as with Digidesign's Medium Delay) or from a separate EQ plug-in. A good default setting for those working at higher sample rates (such as 88.2 or 96kHz) is 24kHz. As it's set 4kHz above what is theoretically audible to the human ear (20kHz), you'll hear the full frequency range of the vocals, but filter out any supersonic artifacts.

However, if you're working with an overtly sibilant vocal track, consider setting the filter at around 16kHz so as to not add delays to any pesky sibilant sounds that occur in the ranges between 16kHz and 20kHz. Similarly, if you have a take riddled with plosives, you may want to engage a sharp (24dB/octave) high-pass filter, and roll off frequencies below 200Hz–600Hz (experiment to find sounds what best). This prevents delaying the "pops" in your Bs and Ps.

A LOOOOONG DELAY

The next variable control you will need to set is Delay Time. If you know the bpm, you can use a simple formula (see sidebar). If you have to "wing it," temporarily set a really high level of feedback (see the next section), and send an impulse (such as a clave hit) into your delay as the track plays. The longer the delay lasts, the more the tendency to drift out of sync. Keep tweaking the delay time for the minimum amount of drift over time. As you lower the amount of feedback to something more rational, the echoes will fall perfectly into sync.

FEEDING BACK

Now that you've set the values for all of the above controls, move on to the feedback option. For the uninitiated, the feedback setting determines the number of repeats. I recommend starting at around 20 to 30 percent, depending on the vocal's amplitude. This works well for a vocal of average volume, and it should make for approximately three delays between words. Remember, the louder the vocal, and the more space between words, the more delay repeats, and vice versa. So play with the feedback settings and tweak until the results match your intentions. EQ

DO THE (DELAY) MATH

Here's a simple formula that translates beats per minute (tempo) into milliseconds per beat (echo time; remember that there are 60,000 milliseconds in one minute):

60,000/tempo = time (in ms)

For example, if a tune's tempo is 120 beats per minute, then the number of milliseconds per beat is:

60,000/120 = 500ms

So, setting the echo for 500ms gives an echo every beat. Repeatedly dividing the delay time by two *(e.g.,* 250ms, 125ms, 62ms, and 31ms) gives progressively tighter echoes that remain in sync with the tempo. Similarly, multiplying by two gives longer echo intervals. By the way, if you're using a hardware multieffects, the time calibration may not be totally accurate, so treat the displayed value as a close approximation. It might be necessary to tweak the delay time a bit to have it sync up perfectly with your music.

However, most modern delay plug-ins have some kind of sync-to-tempo option (see Example 1). This means that the plug-in can follow the host tempo, so instead of needing to specify a delay time in milliseconds, you can simply specify a rhythmic value for the tempo. Experiment with values other than straight quarter, eighth, and sixteenth note echoes, as dotted values can be very effective in giving "motion" to the vocals. *—Craig Anderton*

Ex. 1: Two examples of delays with tempo sync. The foreground effect is the Korg MDE-X LCR delay, where the left, center, and right delays can have different sync values. The background effect is the Delay processor from Waves' GTR. Note that the Sync button is enabled, and the delay set to 1/4D (dotted quarter note).

5 TOOLS FOR KNOCKING SOME ROCK BOMBAST INTO YOUR MIXES

by Jeff Anderson

Undoubtedly, one of the key ingredients to making a good pop mix is the ability to add in a healthy amount of gloss and polish to an otherwise gritty song. But what about those of us who prefer a strong, muscular mix — something with a rough edge that screams rock and roll? The secret is not just in your mixing technique, but also in the gear you use. Here, Duane Lundy — owner of Lexington, Kansas-based Shangri-La Productions — shares his tools for crafting raw and aggressive mixes.

TAPE ECHO

"The '70s-vintage Roland RE-201 Space Echo and Maestro Echoplex are the two standards of the tape-echo world," says Lundy [*Editor's Note: Fulltone Musical Products makes a modern tape echo for $1,200 retail.*]"I prefer hardware tape echoes over any plug-in, as the sound they create seems to sit more naturally in the mix. It's not the impression of a 'painted over' echo — it's like the echo is *part* of the source sound. With the Space Echo and the Echoplex, you are actually recording onto analog tape inside the unit, and, because of this, you have the benefits of analog tape — warmth and character. The sound is vintage and *raw*. In addition to the reverb or echo effect, your signal gets a cool, almost degraded sound quality."

TECH-21 SANSAMP

"Want a distorted snare or kick drum? Plug the SansAmp into an insert point on your console — just as you would a compressor, EQ, or any other piece of outboard equipment — and crank the preamp and the amp drive. You'll be well on your way to a warm, fuzzy, and blissfully dirty-sounding snare or kick tone. The SansAmp is a really simple piece of equipment, and Bomb Factory's plug-in version does a pretty good job of recreating the original. If you're using the plug-in, and you're looking for those charmingly distorted indie-pop vocals, just set the Preamp Control at 12 o'clock, Buzz at two o'clock, Punch at three o'clock, Crunch all the way up, and Drive at around one o'clock. This sounds like you're running the vocal through a Marshall half-stack. Very cool."

UNIVERSAL AUDIO 1176

"Everyone swears by these for a reason. The 1176 can provide polite or aggressive compression, and can sound equally good at both. It really *is* the ultimate compressor. There are four Preset Ratio buttons on the unit, and the trick is to press all four at once. This is called All-Button Mode, and it makes the level of the source signal really consistent, giving it a real in-your-face sound. It's very aggressive — great for squashing room mics, and creating a more up-front sense of space for drums."

For raw and vibey analog delays, you can seek out a vintage Space Echo or Echoplex, or you can go with Fulltone's easily available Tube Tape Echo.

ANALOG CHANNEL STRIPS

"A channel strip ripped out of a funky old mixer can sometimes get you close to the vibey rumble and roar of, say, a classic Neve preamp, but without the high cost. My secret weapon for chunky and warm mixes is the EQ/preamp channel of a Chilton Altas console. There's no transparency or subtlety here, but that's a good thing when you're looking for that vintage quality to your sound. Using this EQ, I've found I can boost room mics around 800Hz to make drums sound more distant. This is a great way to manipulate the actual room sound I've recorded, instead of adding ambience with a reverb unit or plug-in. It's a more natural sound."

CHEAP SPEAKERS

"The average listener is not going to hear your album through $5,000 studio monitors, so you need to mix for their perspective. One way I do this is by mixing in mono through cheap speakers — such as my personal favorite, the Radio Shack Optimus. Then, when I manipulate the EQ or apply effects, I'll know what the song will sound like in an average listening environment. In the preliminary stages of mixing, it's often best to audition volume levels and frequency ranges (to ensure the instruments aren't stepping on each other) on small consumer speakers so that you don't get lost chasing the nuances you can hear on high-end monitors. Trust me — you can get lost in the minutiae. And, when you are just setting levels, you're not supposed to worry about fine articulations, so don't burn your ears out by listening hard and heavy through a pro setup until it's time to really get down to the nitty gritty." EQ

LUNDY'S BASS-LESS MIX STRATEGY

"Don't add bass until late in the mixing process," counsels Lundy. "This is an old trick used by Geoff Emerick, who was one of the engineers for the Beatles. He reasoned that mixing with bass is a good way to get overly excited, because things sound too good. As a result, it can be tempting to just stop where you are. I often choose to start mixing in mono — without any bass — applying reverb, delay, compression, and some EQ. Then, when I switch to stereo, I hear all kinds of things that I otherwise would have missed. When I know where I really am with the mix is when I start bringing the bass in. The last step is to burn a rough, and listen to it in your car, because that's where all your fans are going to hear it."

HOW GARAGEBAND CAN INSPIRE CREATIVITY

by Michael Molenda

As my studio facility, Tiki Town, is about 38 miles from where I live, I've gotten into the habit of recording sketches and overdubs — as well as doing rough mixes — comfortably at home on Apple GarageBand. The software loads quickly, presents few operational hassles, and it's a blast to play with. Of course, GarageBand is not a professional DAW, so there are limitations to its power and productivity. However, I've found that some of the software's constraints can actually inspire some creative epiphanies. Here are a few of my favorite low-tech/high concept GarageBand goofs.

The simple, butt-kicking majesty of the GarageBand method.

IT FORCES YOU TO OPEN YOUR EARS

GarageBand's mixer environment ain't lush — you get little horizontal sliders rather than virtual channel strips and faders. But this butt-simple interface does prevent what I call "visual mixing," where you're tempted to view fader positions to assess levels instead of *listening* to the mix. Yeah, it's dumb, but I have seen this happen many times — even in big studios with experienced engineers. And how do you think tone-sculpting phrases such as "scooped mids" and "dance smiles" came about? Someone was *looking* at a graphic EQ. While this is obviously a small and admittedly dorky point, it's attention to little details such as these that can make the difference between a good track and a great one.

YOU CAN'T GET LOST IN PARAMETERS

GarageBand Effects offer basic parameter controls, and no facility to bus an effect to another track for EQ tweaks. Like a simple guitar stompbox, you can just fool with a couple of options, and then turn the effect on. Although the Audio Unit effects do provide some deeper parameter controls, you're not getting the processing power of whiz-bang plug-ins. And this is good, because it has trained me to pick an effect, immediately assess whether it suits the mix landscape, and then use it or lose it. I don't spend eons enraptured by all the glittery goodies I can impose on a signal. I can't do "ghost" reverb or delay tricks by assigning an effect pre-fader, and then routing it to a dedicated channe. in order to blend in the washes with the main mix. And I can't skew the sonic spectrum, or cause guitar or drum tracks to sound overly bright by cranking the highs or mids on a hall reverb. Horrors! I may actually have to craft naked, unprocessed parts that add impact to a song, rather than gum up the works with sonic goo. The act of making do with what you're given can be quite liberating.

GETTING MICRO ISN'T AN OPTION

The slim digital editing features available in GarageBand aren't much different than the old razor-blade-and-tape days, where you cut the actual analog master, and spliced the necessary pieces back together with editing tape. GarageBand lets you cut-and-paste audio, but not much else — no crossfades, no time expansion or compression, and no ultra-microscopic edit points. I've tried to cut out entire parts from songs, and completely deconstruct arrangements, and sometimes the editing works flawlessly, and sometimes an edit simply can't be done. (I don't think there will be a "GarbageBand" version for those who want to emulate the famously edit-conscious instrumentalists — Butch Vig, Steve Marker, and Duke Erikson — of Garbage.) But *not* getting obsessed with the omnipotent power of digital editing can be bliss, because you might spend more time playing, and less time mouse clicking. You may be forced to reach deep into your heart, soul, and head to develop a thrilling part on the spot, instead of picking bits-and-pieces from other sessions, and cobbling them together like some crazy, senior-citizen hoarder of moldy newspapers and busted Hummels. There's no crime in using a digital-audio recorder as a "tape deck" that documents performances, rather than as some marvelous Ronco sonic-editing machine.

YOU'RE NOT IN KANSAS ANYMORE

Changing working habits is always a good idea for musicians, because immutable structures are typically not conducive to the messy anarchy of creative impulses. In this arena, you should view GarageBand as a tool of inspiration, rather than a sub-professional DAW. You *will* be forced to work somewhat differently than you do in Pro Tools, Logic, Performer, Reason, or any other software recording system. You'll likely need to find work-arounds for things that are standard operations in professional DAWs, and the explorations may lead you to exciting sonic or musical discoveries. Remember, open mind good — closed mind bad. EQ

CHEAT SHEET

DELAY LINES

BY CRAIG ANDERTON

***EQ*'s new Cheat Sheet feature delivers concise and explicit, step-by-step information on how to do specific audio tasks. This issue, I'll detail some useful sounds you can craft using hardware and software delays.**

TUNING SOUNDS/RESONATOR

Delay lines can give a sense of pitch to unpitched sounds, thus "tuning" sounds to a specific key.

Initial Delay Time: 0–10ms. **Feedback:** Maximum short of runaway feedback. **Feedback Phase:** Positive feedback. **Modulation Width:** Minimum. **Output Mix:** 100 percent delayed (wet) sound. **Tweaking:** Less feedback gives less of a pitched sound. Delay varies "tuning," Feedback Phase varies timbre.

50s-STYLE SLAPBACK ECHO

Feeding a signal into a tape recorder input, going into record, rolling tape, and monitoring the signal coming from the playback head produced a typical delay of around 70ms.

Initial Delay Time: 70ms. **Feedback:** Minimum feedback initially. **Feedback Phase:** Positive. **Modulation Width:** Minimum. **Output Mix:** 65 percent dry, 35 percent delayed initially. **Tweaking:** Increase feedback to increase the number of repeats.

"FRIPPERTRONIC" ECHO EFFECTS

This style of playing, popularized by guitarist Robert Fripp, requires very long echo times and allows layering parts.

Initial Delay: At least 3 seconds. **Feedback:** Maximum short of runaway feedback. **Feedback Phase:** Positive. **Modulation Width:** Minimum. **Output Mix:** 50 percent dry, 50 percent delayed. **Tweaking:** For best results, play either long sustaining notes or clusters of repetitive notes. This patch is highly sensitive to level; re-adjust the input level control if needed to prevent distortion, or feedback to prevent runaway feedback.

MANUAL FLANGING

"Flanging" imparts a whooshing, jet airplane-like effect to complex sounds.

Initial Delay: Vary between the shortest delay possible down to around 10–20 ms. **Feedback:** Determines flanging intensity. Initially set to 50 percent. **Feedback Phase:** Determines tonality. Positive feedback gives a "metallic sound" while negative feedback gives a "hollow" sound. **Modulation Width:** Minimum. **Output Mix:** 50 percent dry, 50 percent delayed. **Tweaking:** Feedback alters the effect's intensity. When using close to maximum feedback, try setting Output Mix to 100 percent.

ROTATING SPEAKER SIMULATION

Some organs use rotating speaker systems to create timbral changes; as the speaker rotates, the listener hears reflected and direct sounds in various proportions.

Initial Delay: Approximately 10ms. **Feedback:** Minimum. **Modulation Width:** Turn up just enough to hear the modulation (about 20 percent). **Modulation Speed:** Initially set for a fairly fast rate (*e.g.*, 7–10Hz). **Output Mix:** 50 percent dry, 50 percent delayed. **Tweaking:** The Modulation Width control is crucial — if up too far, the effect will not be sufficiently subtle. Rotating speaker systems generally offer both fast and slow rotation speeds; however, when switching from one speed to another the rate "accelerates" to the faster speed or "decelerates" to the slower speed, so change Modulation Speed slowly when going from one modulation rate to another.

VIBRATO

Vibrato is a cyclic pitch change.

Initial Delay: 10ms. **Feedback:** Minimum. **Modulation Width:** About 15 percent. **Modulation Speed:** Select a speed in the vibrato range (7–14Hz). **Output Mix:** 100 percent delayed. **Tweaking:** The initial delay setting can influence the vibrato's "smoothness." After setting the Modulation Width and Speed, determine if changing the initial delay improves the sound. Modulation control re-adjustment may be necessary.

PHASE SHIFTER SIMULATION

Phase shifters were intended to simulate the sound of tape flanging, but give a different, gentler sound.

Initial Delay: Approximately 2ms. **Feedback:** Minimum. **Feedback Phase:** Negative. **Modulation Width:** About 50 percent. **Modulation Speed:** Adjust to suit — start with a medium rate. **Output Mix:** 50 percent dry, 50 percent delayed. **Tweaking:** Phase shifters are generally characterized by short delay times and fairly narrow sweep ranges, so play with the Initial Delay and Modulation Width controls. Wide sweep range delays require particularly low Modulation Width control settings.

TONE CONTROL (COMB FILTER)

Mixing a straight signal with the same signal passed through a short delay produces a "comb filtering" effect that changes the signal's tone.

Initial Delay: Around 2–3ms. **Feedback:** Minimum. **Feedback Phase:** See "Tweaking." **Modulation Width:** Minimum. **Output Mix:** 50 percent dry, 50 percent delayed. **Tweaking:** Varying initial Delay changes the tonality. Increasing Feedback creates a more "resonant" sound by accenting the filter peaks and dips. Feedback phase changes the overall timbre. Too much feedback may give an overly-sharp sound; change the Output Mix for more dry sound.

CHORUSING

Chorusing "thickens" the sound of an instrument. The optimum initial delay for chorusing extends from about 10–25ms; longer delays give a thicker chorus sound, while shorter delays give an effect that sounds more like flanging/chorusing.

Initial Delay: 10–25ms. **Feedback:** About 25 percent. **Feedback Phase:** Positive. **Modulation Width:** Turn up slightly; too much can create an "out-of-tune" effect. **Modulation Speed:** A relatively slow speed (0.1–2Hz) gives the most majestic sound. **Output Mix:** 50 percent dry, 50 percent delayed. **Tweaking:** The slower the Modulation Speed, the more you can turn up Modulation Width. Combining slow modulation speed with substantial modulation width produces a wide-range chorus effect. Random modulation, if available, gives a less predictable chorusing sound that reinforces the "ensemble" effect.

DOUBLING

In the studio, musicians often play a part then play the same part as an overdub. Combining the two parts creates a bigger sound. However, slight timing differences between the two overdubs (no player can duplicate a part exactly) create a pseudo-random, tight echo effect.

Initial Delay: Around 25ms — just long enough to hear a noticeable, but not obvious, echo. **Feedback:** Minimum. **Modulation Width:** About 20 percent to subtly change the echo time. **Modulation Speed:** Fairly slow. **Output Mix:** 50 percent dry, 50 percent delayed; adjust later if necessary. **Tweaking:** Initial Delay is the most crucial control for doubling — it must be long enough to create a doubling effect, yet not so long that you hear an obvious echo.

CHAMELEON LABS TS1 AND TS2

Affordable Chinese Tube Condensers That Rock

By J.J. Blair

I have long been a detractor of Chinese mics. With the exception of the Langevin CR3As, which were made in China, yet assembled by Manley Labs in Chino, CA, I have yet to experience a Chinese-made mic that I'm willing to use on a recording session. I mean, we have reason to be wary of these products, right? From pet food that kills our animals, tires that have not properly been laminated and explode while driving, seafood containing harmful antibiotics, toxic toothpaste, and other recent scandals, we have some very serious examples of how cheap labor comes with a hidden cost. And as more and more audio manufacturers start outsourcing parts to China, they have to be increasingly vigilant in order to maintain quality.

But Chameleon Labs has decided to take a different approach: Hire somebody schooled in the manufacturing of traditional European mics to design a microphone, and then make it affordable by building it in China. The results? The TS1 and TS2 tube condenser mics.

OVERVIEW

The TS1 is a fixed-pattern, small-diaphragm mic that comes with two removable capsules: a cardioid pattern, and an omni pattern capsule (a hypercardioid is available as an option, and an optional adapter allows the TS1 to use AKG's original CK series capsules, as well). The TS2 is a large-diaphragm, variable-pattern model. Included with any given mic is a durable aluminum, padded carrying case packaged with a shockmount, a power supply (switchable between 115v and 220v), and the necessary cables.

However, the TS2 offers a unique feature on its power supply: A knob that allows you to control the voltage to the heater plate of the 12AT7 tube, whereby you can either starve the tube, or give it extra voltage. Why? The mic's designer had this to say: "The variable heater on the TS-2 supply allows the mic to have more than one sound. For example, I can 'dial in' a particular singer — often by just setting the voltage a bit under the normal setting. At the extreme low range, the mic gets very cranky-sounding — and it also loses output — but I've used that setting on a punk session to give the guitar and snare a crunchy and aggressive quality. I never have selected the full-throttle setting for any tracks that I was serious about, but time will tell. Also, it's important that folks heed this warning: Using the tube at the extreme ranges *will* shorten its lifespan noticeably."

All tests were recorded at 88.2kHz/24-bit into Pro Tools HD, using Apogee AD16X converters, which are my favorite multi-channel converters. I find them to be the most honest for tracking, and they suffer from the least pre-ringing of any of the converters I've tried, which makes for more accurate transients.

Fig. 1: The TS2 going head to head with an AKG C414 B-ULS for the affection of a Selmer Zodiac Twin 30.

ON DRUMS

I used the TS1s as overheads in an isosceles triangle position, which is as follows: One mic placed about three feet directly over the snare, and the other mic positioned to the outside of the floor tom, three feet from the snare. This is a great overhead technique for capturing a good snare-centric stereo image of the drums, where you get the cymbals, as well as all the toms and snare in a nice balance. Simply mix in a kick drum mic, and you're in business.

I used Neumann KM84s as reference mics, and I ended up favoring the TS1s in this overhead application. The cymbals were

sweet, and the drums had a good sound to them, as well. (I've tried mics as overheads before where the cymbals sounded good, but the drums didn't please me, and vice versa. These two managed to convey the sound of both the drums and cymbals well.) The TS1s had a similar range to the KM84s, but there was a sex appeal to their sound due to a slightly more open top end. I want to clarify that the sound has extended high frequencies — not boosted — in comparison to the KM84s.

Switching the TS1s out for the TS2s resulted in a little more bell sound to the cymbals, but it was on the drum sounds where these mics stood out. The way the snare, and, particularly, the toms, came through on the TS2s made them my favorite of the three mic choices. In short, the TS2s gave some nice boom and body to the toms.

ON GUITAR

Next up was a Martin D35 acoustic. Even though I tend to prefer miking the soundhole, we recorded the acoustic from about 8" away, positioning the mics on both the soundhole *and* the 12th fret. Of the two Chameleons, the winner for the soundhole mic was the TS1. There was a nice sparkle to the top end, and the midrange was very articulate. The TS2 had nice-sounding highs, but it was a little tubby at the hole, and it sounded a little strange at the 12th fret, as well. It could take some more experimenting to find a suitable way to use this mic for acoustic guitars, but, at first blush, it's not the mic I'm going to reach for immediately in this application.

I *never* use small-diaphragm condensers on electric guitar — I just don't like the way they sound — so I tested only the TS2. This time, it went against the AKG C414 B-ULS. The C414 is a great utility mic that works reasonably well on just about anything. With both the TS2 and the C414 about 6" off the speaker — and equally offset to the voice-coil dome — I recorded some fairly loud electric guitar from a vintage Selmer Zodiac Twin 30, into a pair of API 512b mic preamps (Figure 1). The TS2 sounded great without any EQ. It captured solid lows, punchy mids, and gave some real teeth to the highs. In fact, the crisp sound let a crunchy distorted guitar cut right through the track all on its own — which wouldn't be said for the C414, as it needed a little help from my EQs. If you want aggressive guitar sounds, the TS2 might be the mic for you. It gives that "in your face" guitar sound I see lots of less-experienced guys trying to get with ribbon mics. And with the 20dB pad, it's a great mic for all you half-stack folks, too. It's a winner.

ON PIANO

Both the TS1s and TS2s sounded spectacular on a Yamaha C7 grand piano. Initially, I didn't care for the TS1s, but then I tried them with the omni capsules, and it was a whole new ball game. The TS2 — in cardioid mode — was fantastic, as well. Both mics gave a

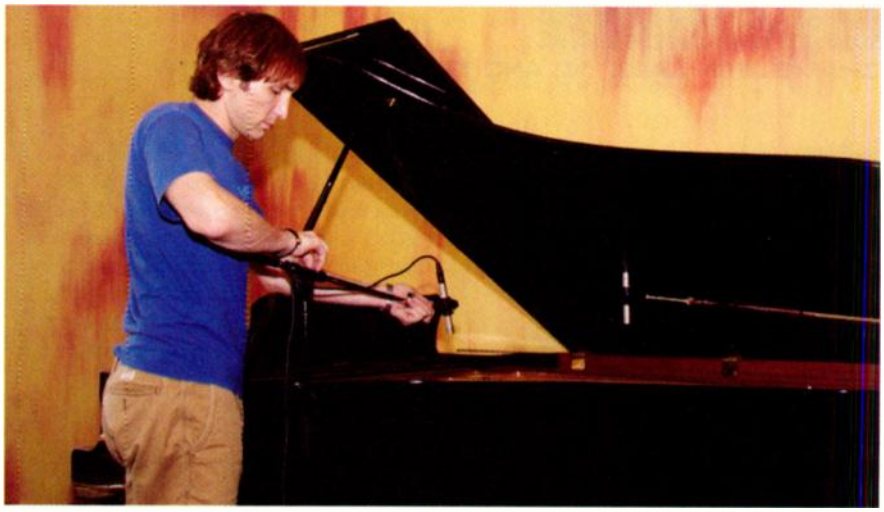
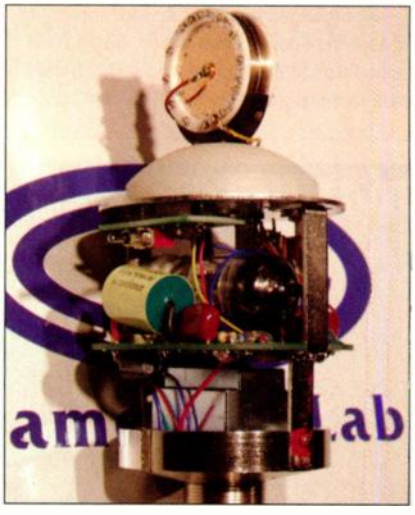
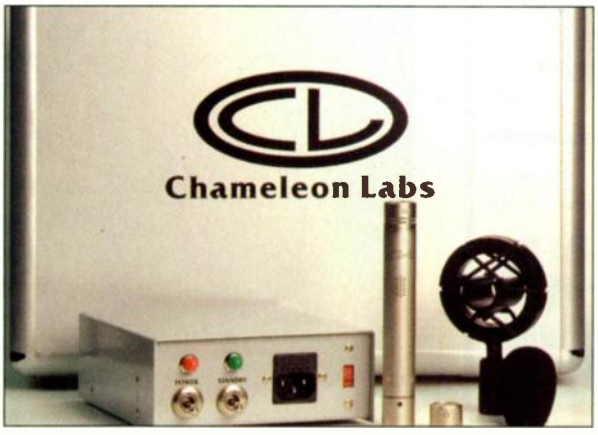


Fig. 2: J.J. Blair miking up a Yamaha C7 grand piano with two TS1s.



The TS2, laid open for all to see.



Chameleon Labs TS1.

Chameleon Labs TS2.

very nice piano sound required no EQ, and I was able to achieve a very even balance between all the notes across the keyboard by putting one mic about a foot above the high strings, and another mic a foot above where the low and mid strings cross (Figure 2).

ON VOCALS

Lastly, I tried the TS2 on vocals, again using the C414 for comparison. Where the C414 sounded very flat and unexciting, the TS2 had a nice, airy openness on the top end, as well as what I can only describe as a warm richness. As I played with the patterns, I found the mic didn't take on a different balance of lows and highs in omni mode, as can be typical with a lot of variable-pattern condensers. That said, I preferred the figure-8 pattern setting for vocals, as it brought out some richness in the midrange.

Another personal acid test for vocal mics is applying heavy compression. Some mics sound nice at first, but as you add compression to the signal, they suddenly don't sit well in the mix anymore, and the sound becomes rather unattractive. I put the TS2 into a Urei 1176-LN compressor, set at a ratio of 12:1 with around –10dB of reduction. This setting made the mic sound airier, and moved the vocal directly to the front of the mix. This was exactly what I wanted, and I suggest you try this technique, as well, if you end up with a TS2.

CONCLUSIONS

I'm truly impressed with these mics. My only caveat is that I will wait to see if Chinese manufacturing can consistently deliver quality production. But at these prices, and with warranty service available, it shouldn't matter to the skeptics.

My only other qualm is that one of the TS2s exhibited a rattling sound when I first took it out of the box. Using the tool supplied with the mic to open it, I found a wandering screw for which I could not find a home. The problem? The screws for the strap that holds the transformer down were frightfully loose, and the transformer itself was rattling a bit. I managed to correct this, and, of the four mics, this was the only problem I found. Still, I don't like to have to tinker with new mics like that.

That said, everything else about these mics is impeccable, and I highly recommend trying them. If you can provide the magic in front of these two mics, they'll do a great job capturing your performance. EQ

PRODUCT TYPE: TS1, fixed-pattern tube pencil condenser; TS2, variable-pattern tube condenser.
TARGET MARKET: Mid- to professional-level recording musicians who seek a less expensive alternative to some classic Euro-style tube mics, but don't want to sacrifice sound quality.
STRENGTHS: Solidly built. Sounds great. Comparable quality to many esteemed pro mics at a fraction of the price.
LIMITATIONS: Nothing noteworthy.
LIST PRICE: TS1, $499; TS2, $749
CONTACT: www.chameleonlabs.com

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PRIMERA BRAVO SE

CD-R and DVD±R Printing and Duplication in Your Bedroom

by Jeff Anderson

There are many duplication services on the market, and it's tough to find the best company to handle your CD or DVD if you're doing limited runs. The fix is to do it all at home, but creating a stack of your own duplicates has, historically, been a colossal pain in the butt.

Case in point: When I first started offering the service out of my studio for other musicians, burning wasn't that big of a problem, but labeling the discs was time-consuming, labor-intensive, and the end product looked like crap. Definitely not what I would want to be selling at my merch booth — and systems with on-disc printing were just too expensive.

Then Primera came along with their original Bravo printer/disc burner combo system. The price was decent, so I picked it up . . . and ran almost 100,000 copies through it over the next five years. Now the Bravo SE (the supposed little brother to the original unit) has been released, and I felt that I had to check one out to see if it was as much of a lifesaver as its predecessor.

OVERVIEW

The Bravo SE is much more space-efficient, taking up only as much space as a small printer or scanner. It also didn't bog down the computer when running many other simultaneous tasks, and needs only one ink cartridge instead of the original two. This makes keeping the ink in stock both easier and cheaper.

The Bravo SE is more "minimally robotic" than some other similar products; the arm has to travel only about 5" to pick up the disc and drop it off for burning/printing. This means much less wear and tear on the mechanism over time.

The Bravo SE holds 20 discs, but I found it sufficient for small runs. It's also pretty user-friendly: It comes with everything you need (software, cabling, ink, discs, and the unit). Installing the software into your computer, then popping in the ink cartridge and discs, was enough to get the show on the road. Easy.

APPLYING THE BRAVO SE

The included SureThing software is painless for anyone with entry-level computer skills — you don't have to be a graphics wizard to design a nice-looking disc face. Still, the instructions can be a bit vague, so always run a test disc before committing to a line to make sure everything is in order.

Besides that, the Bravo SE is quiet (thank you), runs really smoothly, and is fast. I could burn over 200 discs within eight hours, which is pretty good, by burning the audio on the disc in a standard tower burner and then using the Bravo SE as a printer.

So, to the question on everyone's mind: "What's the cost per CD?" Well, it depends on what you print. Ink costs are a factor, so if you're only doing text printing instead of full-scale, full-cover graphics, you can run about 1,600 discs for less than $80 in ink (figure on doubling that for full-color printing). Including the medium itself, you're looking at a maximum of around 37 cents per disc — not bad.

But is the machine reliable? In both ways, yes. It's reliable enough that Primera will repair it for you if anything goes wrong (and duplicators do sometimes need service), and after the initial break-in period of 100 discs or so, every little gremlin had been hammered out (at first there were some issues with the disc dropping to the bin after the printer drawer retracted, but that cleared up quickly, on its own).

CONCLUSIONS

I like the idea of home duplication for numerous reasons — mostly because it gives me the power to produce my own product from start to finish, without paying for outside services — and the Bravo SE definitely served me well. It's user-friendly, efficient, and priced fairly; under $1,500 to have your own small-scale duplication facility is about as DIY as you can get. The small disc capacity may keep you hovering around the unit for longer runs, but you probably have something else you need to do on your computer while you wait for things to print. The "look" of the end product is great, but the Bravo SE does accept only proprietary ink cartridges, so there's no cutting costs there (however, at under $40 per standard color cartridge, the cost is in line with office printers).

Still, the gripes are minor, and the praises are many. If you're looking to print your own discs from home, the Bravo SE will definitely cover the needs of most musicians. EQ

PRODUCT TYPE: Small, tabletop CD-R/DVD±R burner/printer combo.
TARGET MARKET: Musicians, studios, or small labels who want to bring small-scale CD/DVD duplication in-house.
STRENGTHS: Good design. Small footprint. Quiet operation. Needs only one ink cartridge. Very reliable.
LIMITATIONS: Requires proprietary ink cartridges.
PRICE: $1,495 (list)
CONTACT: www.primera.com

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ROLAND MC-808

Roland's Mighty Groovebox Family Has a New Member

by Max Sidman

The Roland TR-808 is an historic little piece of gear. Introduced in late 1980, this drum machine originally attracted producers in the still-burgeoning hip-hop and electronic music scenes because of its low price point and versatility. It also anticipated the TR-606 drum machine, which along with the complementary TB-303 Bass Line ("TB" stood for "Transistorized Bass"), became an ad hoc "groovebox" that served as a workhorse for club DJs, live electronic musicians, and bedroom producers. In 1983, the TR-808 was succeeded by the TR-909, which eventually became the backbone of much dance music; the 808, 909, and 303 also inspired Propellerheads' ReBirth, the first emulation in software of vintage hardware instruments.

Over the years, Roland refined these types of products and in 1996, coined the term "Groovebox" to describe the MC-303. The name Groovebox has graced several moderately-priced, relatively feature-laden Roland products, and has grown to become loosely synonymous with any device that employs a drum/synth/sequencer combo. Perhaps not surprisingly, Roland's newest addition to the Groovebox family, the MC-808 Sampling Groovebox, continues to build on an already stellar reputation.

THE QUICK FIX

Beatsmiths familiar with Roland's MC-909 model will find a lot of similarity in the new MC-808. Like its predecessor, the MC-808 can stand on its own as a complete creative tool — sampler, sequencer, synthesizer, drum machine, mixer, and track builder. It could easily become a producer or club DJ's weapon of choice due to the depth and breadth of the sample bank, the versatility with which sounds can be manipulated, the easy-as-pie sampling interface, and the on-the-fly method for constructing and evolving beats and loops.

NEW BEATS

Upgrades from the MC-909 include a refreshed and expanded collection of preloaded sounds and loops, 128-part polyphony, USB interface, and Mac/Windows-compatible editing software that lets you clean up AIF and WAV samples (as well as complete patches) on a standard-sized monitor — a really helpful feature when you're trying to zero in on editing the nuances of a particular sound.

The MC-808's biggest "wow" factor comes from the addition of motorized faders, which, admittedly, made me jump in my chair when I first fired up the machine. But beyond just being really cool to watch while cycling through the pan, volume, and synthesizer control modes, the motorized faders are also a great aid when scrolling through patches and samples, to see exactly how the sounds have been constructed or manipulated. This feature can be extremely handy for club DJs who intend to use the MC-808 as a live performance instrument as well as a studio tool. You can manipulate sounds on the fly with the MC-808, and because the faders are set to the positions specified in memory, you can *see* the state of the music in real time at every step. As a result, initiating any changes or applying new patches or loops won't interrupt the music's flow on the dance floor with volume spikes or sudden level changes, as the faders always reflect any current parameter settings. (For those who prefer manual fader manipulation, it's possible to turn off the motors.)

MEMORY CHUNKS

A word to the wise for anyone who's looking to sample and play back in a live performance environment as well as the studio: The MC-808 contains a Compact Flash slot that can accommodate a 512MB card, but comes stock with only 4MB of onboard RAM. This amount of memory limits samples to approximately 49 seconds of monaural sound (around 24 seconds in stereo), which, for a bedroom producer, might only be a minor annoyance — scores of amazing records have been made with gear that allows a lot less sample time than 24 seconds. But for live performance, an upgrade provides a lot more possibilities by extending the amount of sounds you can have on call at any given moment.

Installing the full half Gigabyte of internal memory increases stereo sampling time to approximately 50 minutes (over 100 minutes in mono). Luckily, like all the Roland Grooveboxes before it, upgrading

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the MC-808's RAM is a snap; just follow the instructions in the manual, as there's no need to return the unit to the factory or perform any expensive/difficult maintenance.

UP IN IT

The relatively modest amount of stock internal memory notwithstanding, the MC-808 is ready to perform right out of the box. And like other machines of its ilk, the best way to get into it is just to start playing. The stock sample bank is deep enough to get lost in for weeks at a time: From individual instrument sounds to orchestral patches and big band stabs to the wildest synths and saws (and of course a generous helping of those classic TR-808 and -909 drum sounds to provide the requisite thump), what you need is pretty much all here, and it's pretty much all malleable. Don't like the pitch of a certain synth sound? No problem, just drop it down an octave or two and listen as it becomes much more sinister. Or, jump into synthesizer control mode and start messing with the sonic parameters of a patch or sample to change the sound drastically at its most basic levels. The MC-808's D-Beam (a relatively standard Groovebox feature at this point) allows sound manipulation by moving a hand through the light stream; it's fun, cool, and can make for some interesting results.

Once you've lined up a handful of patterns, samples, and patches, making music on the MC-808 is a snap. All the elements can be laid out in Song mode to create a complete piece, or multiple parts can be assigned to the keyboard pads and played individually or simultaneously as chords, making improvisation and performance easy. Also, as the unit records digital performance data rather than analog or digital audio, editing is flexible, deep, and easily updated.

CONCLUSIONS

Ultimately, the MC-808 Groovebox can handle just about anything a project producer can throw at it. From raw sound editing to complete song construction and on-the-fly composition, the MC-808 Groovebox is the strongest to date of Roland's storied line — it boasts a reasonable price tag, more functionality than a Swiss Army knife, and the lineage of a royal family. EQ

PRODUCT TYPE: RAM-based drum machine/synthesizer/sequencer/sampler.
TARGET MARKET: Beginning-to-intermediate producers/beatmakers, and those who want to enhance an existing studio with beat-oriented hardware tools.
STRENGTHS: Deep sample bank. PC/Mac USB compatibility with editing software. Motorized (really!) faders. Tried-and-true user interface. Cost-effective. Expandable to half a Gigabyte of internal RAM.
LIMITATIONS: Ships with only 4MB of internal RAM.
PRICE: $799 (list)
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MAGIX SAMPLITUDE PROFESSIONAL 9.1

One of the First DAWs Offers Up a Major Update

by Glenn Bucci

Magix's Samplitude Digital Audio Workstation software has a long lineage, having first appeared on the Commodore Amiga platform. This high end audio/MIDI recording, mastering and post-production program for Windows 2K/XP (with support for up to four CPUs/cores) has garnered a strong following over the years, particularly in Europe; it competes against products such as Pro Tools, Nuendo/Cubase, Sonar, and (when running under Boot Camp), Digital Performer and Logic Pro. The program's vastness precludes going into every detail, but we'll summarize the program's most important aspects. Once you get a feel for what Samplitude is about, you can download a trial copy from the Magix website to gain first-hand experience.

Fig. 1: Samplitude's workspace is clean and allows seeing multiple functions at once, without clutter. The mixer is toward the lower right; the arranger screen is in the background, and one of Samplitude's many plug-ins (Corvex) is in the upper right.

THE BASICS

Samplitude offers up to 999 tracks, and still supports DirectX (unlike some companies) as well as VST plug-ins; it also offers notation, POW-r dithering, ReWire host capabilities (rewiring TASCAM's Giga Studio with Samplitude ran without a hitch — in fact the two together ran faster than Giga did with Cubase), compensation for plug-in delays, and compatibility with ASIO/MME/WDM hardware. Copy protection is dongle-based.

Samplitude 9.1 includes both expected and unexpected features and plug-ins: Folder tracks, SampleTank 2.1 LE, Spectral Cleaning (a way to process amplitude with selected parts of the frequency spectrum), Auto Jam Session (think JamMan-style looping/overdub capabilities), Sound Cloner (nice filtering effects), MIDI and score editors, excellent comping options, and surround sound capabilities. Its 32-bit float audio engine records up to 192kHz.

Magix has done several things to help this program stay competitive yet remain "musician-friendly." For starters, you can record, mix, master, and burn CDs within one program — it's a one-stop music production shop. Magix also excels at customer service; the people who work on the program go to their forums and answer customer questions, as well as implement updates based on user feedback. Their phone customer service is also excellent, with non-existent or minimal hold times. Also helpful: the tutorial videos on the www.samplitude.com forums. And overall, the program's workflow is pretty straightforward — you can do most tasks with just a couple of steps.

Upon opening Samplitude, a Start Wizard assists in locating recent projects or starting a new one. Multiple skins are available, so you can choose various "looks" (I like the Samplitude 8 skin the best). For large projects, one mixer skin allows showing a lot more tracks on the screen; you can switch between skins with a mouse click.

MEET THE FAMILY

Samplitude comes in three different versions: Professional (reviewed here), Classic, and Master. Classic and Master are more cost-effective versions of Professional that lack some of the bells and whistles; check the website for a comparison chart. (Sequoia is Samplitude's bigger brother. It costs over twice as much and is designed more for pro-level mastering applications, thus competing with programs like Sonic Solutions and Sadie.) Interestingly, Samplitude Professional ships with a separate program called Magix Movie Edit Pro 11 that offers highly capable video editing — perfect for those seeking exposure on places like YouTube.

WORKFLOW

Perhaps Samplitude's most confusing element is the use of three different types of "projects" — RAM, Hard Disk, and Virtual (VIP). Briefly, RAM projects record data in RAM or load the data in from hard disk. While fast, the amount of RAM limits recording time so this mode works best with small bits of digital audio. Hard Disk projects work like traditional digital audio editors: The hard drive provides virtual RAM, while the system RAM acts as a buffer. Virtual projects (VIPs)

"point" to the RAM or HD files, providing a fast and fluid workspace. Like most modern programs, Samplitude offers a track freeze function to convert a MIDI/virtual instrument combination to an audio track.

You're not forced to stay "in the box," because Samplitude makes it easy to use hardware gear as an insert. A submenu under the project options lets you assign input and outputs from your converters for this purpose; Samplitude then "pings" the external device to adjust for the delay caused by conversions to and from the hardware. Upon doing this you can create a new FX send and output channel on your mixer. (The send will have a blue fader, which makes finding the channel a little easier as standard audio and MIDI channel faders are white.)

As with most DAWs, there is a project page and and mixer window (Figure 1). Magix recommends a monitor for each, or a large monitor to view both on the same screen. On the arrange page, you can see your track plug-ins, notes, and fader, all at the same time. All faders and meters for each channel are visible if you expand the tracks enough. To help reduce arrange page clutter, there are several screen views: The Power screen shows all icons for all functions, while the Easy, Record, Edit, and Master screens display only the icons used in that particular mode. "Mouseovers" for each icon explain the icon's function, or give tips.

The mixer screen shows the input, gain, aux, inserts, EQ, delay, and pan simultaneously. This is something that Nuendo/Cubase still does not offer, which I found refreshing in Samplitude.

EFFECTS

Effects insert in objects, tracks, and/or the master section. Their Vintage Effects Suite includes Corvex (chorus and flanger), Ecox (echo, delay), Filtox (modulation, filter), along with a compressor/gate, multiband compressor, multiband stereo enhancer, vocoder, dehisser, amp simulation, noise reduction, and de-esser. All these effects are a step up from the run-of-the-mill effects found on some programs. The 4-band EQ is pretty neutral; all bands span 10Hz to 22kHz, and are scaleable with a variable Q factor from 10Hz to 10kHz.

The two reverbs are very impressive. The VariVerb Pro Reverb creates classic and modern reverb effects, and reminds me a little of the TC Powercore ClassicVerb's character. The other reverb, Room Simulator, is a great-sounding convolution reverb with

Fig. 2: The unusual, and highly effective, Am-Pulse analog modeling processor provides control over dynamics and transients.

many rooms and options; it can run at half sample rate to suck less CPU power. For mastering, the Spectral Cleaning plug-in helps remove background noise in your tracks, similarly to Steinberg Wavelab's Spectrum Editor or Adobe Audition's Frequency Space Editing feature.

Three additional effects, Am-Track, Am-Pulse (Figure 2), and Am-Phibia are high-quality analog modeling effects. Am-Track combines an analog compressor and tape simulator; it's well-suited to tracking or subgroup signals. The plug-in recognizes the number of incoming signals and, if necessary, edits the signal in mono. Two completely different compressors work in Am-Track, each with their own independent controls and methodology: In VCA mode, the parameter selection and design correspond to a modern compressor with a VCA element as the controlling circuit, and a forward automatic gain control in the detector section ("feed-forward design" — that is, the controlling signal for level reduction comes from the input signal). This provides an accurate, largely neutral and, in relation to the adjustable parameters, easily predictable sound. The character reminded me a little of the UAD 1176 plug-in. It can be punchy, and grabs transients very well.

Vintage mode is the Am-Track's start-up state. It has less of a "surgical" quality, but adds more character. The Am-Track "drive" fader regulates the feedback amplification, and can make the audio sound like anything between "airy" and "funky."

Am-Track's tape simulation section is post-compression, and offers the opportunity to give your recordings an "analog touch" by reproducing typical aspects of a tape recording. Use the tape simulation as a "peak stop" if you use one of the two compressors to compress the signals: Transients that the compressor lets through (*e.g.*, when using longer attack times) can be blocked gently by "tape emulating" the signal afterward.

Am-Phibia is a tube amplifier/channel strip. It combines an "optical" compressor with a pre- and post- filter unit, and can serve as a vocal preamp, tube guitar amp, sound pre-processor with corresponding EQ and compressor settings, or simply a "warmer." This is similar to the UAD LA2-A, though a little cleaner.

Am-Pulse is a "transient modeler" — a creative tool for direct editing of a signal's percussive or dynamic envelope. It's most useful on drum tracks as well as acoustic, electric, and bass guitars where you want to emphasize or dampen the attack rate.

EDITING

Samplitude's crossfade editor is very easy to use, with a choice of fade in/fade out (linear, exponential, logarithmic, cosine, and sine/cosine curves are available; linear curves require less computer power than non-linear ones).

The Elastic Audio editor provides a fully automated realtime implementation of the same non-destructive pitch-shifting processes available via the Object Editor dialog. It's even possible to draw complex control curves, which dynamically affect pitch-shifting throughout an object's duration. This is similar to the audio warp found in Cubase; however, the Cubase version stretches the timeline as well, which affects the whole project. In Samplitude, you can shift the audio yet have the time line remain static.

MIDI

Working with MIDI is similar to many other DAWs, with a piano roll interface, and controller displays along the bottom; there's also a drum editor that makes it easy to create drum parts. Though many will find the MIDI capabilities sufficient, they are not as exhaustive as those found in progams such as Logic Pro or Cubase (for example, there's no way to insert MIDI effects). However, Samplitude's MIDI editing has come a long way in a short time, and more updates are likely.

BRING ON ROBOTA PRO

This eight-voice polyphonic drum machine offers a built-in eight-track, 64-step sequencer. Each of its eight "instruments" is generated by an identical oscillator section, which can

produce sine, triangle, and sawtooth tones for drum sounds *à la* Roland TR-808 or TR-909, but can also load WAV format samples. Though it's handy to have around, it's not intended to replace third-party drum software like Toontrack EZdrummer or Fxpansion BFD.

THE BIG SCORE

The Score Editor displays MIDI data on a score sheet, interpreting MIDI data in real time; change the MIDI data, and the score reflects those changes.

Each track can contain a maximum of 48 staves. The track's staves can be used as an instrument or instrument group, and can show all MIDI tracks in the Score Editor simultaneously by using the multi-object editing feature. How easy is it to use? My 9-year-old son played a song he wrote on a weighted MIDI keyboard. In Score, we were able to give the song a title, put his name on it, correct the mistakes, choose piano option (so we had bass and treble clefs), tie some notes, erase others, and use the pen for creating and inserting new notes. When we were done, we hit the print button and the Score sheet was completed. He then had something to show his music teacher at school. What's more, you can now export your score as a Music XML file so it can be further edited in stave editing programs (*e.g.*, Sibelius, Finale).

MASTERING

Samplitude has the metering that mastering engineers like, including spectroscope, peak meters, oscilloscope, bit meter, and spectrogram L/R oscilloscope (phase correction). There are a number of new presets for the K Metering System. You can burn CDs by creating a prep file first from which you burn the CD (very foolproof), or "on the fly" from the project itself (which requires more resources).

In comparing the mastering features to Wavelab, Samplitude competes well. The workflow and options are similar. However it lacks some features Wavelab offers, like Montage; however, given Samplitude's inherent multitrack orientation, it's hard to see this as much of a limitation.

CONCLUSIONS

Samplitude really impressed me — so much so that Samplitude is now the main DAW in my studio. The plug-ins are good enough that I don't feel any need for many other third-party plug-ins to get the needed results. Object-oriented editing is very powerful, and many operations can be done without lots of mouse clicks; I also really like the Take Manager, which organizes/edits several takes, then cuts and pastes the best parts. And having a stereo expander (widens or narrows the stereo mix) on the output bus is great.

Each track has a stereo editor; just click on the mixer's pan button. As I also use Cubase, I put the Nuendo/Cubase template on the Mackie Controller (one of several supported control surfaces) and customized Samplitude with the learn button (in the MIDI setup) to work similarly to the same control functions as Cubase. This made it much easier to get familiar with the program.

As to my wish list, currently you can't see bars/beats on the project page and minutes/seconds on the transport bar at the same time — I want to be able to see both. And while the basic controls for the Mackie controller work well, there's still room for improvement when controlling plugs-ins. Having deeper MIDI functions (including effects) would also be helpful.

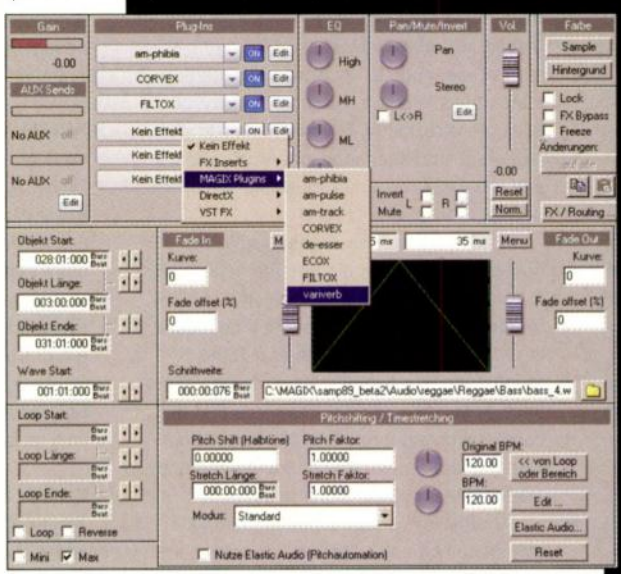
Still, those are fairly minor complaints compared to the program's many strengths. Samplitude is an ambitious program that is flexible, easy to use, and has great customer support. If you are looking at a DAW program or thinking about changing to a different program, it's easy to find out if Samplitude is for you: Just download the demo. You might like what you see as much as I did. EQ

PRODUCT TYPE: Recording, mixing, mastering, and CD-burning DAW software.
TARGET MARKET: Studios and musicians who want a one-stop production solution for all aspects of the production process.
STRENGTHS: Excellent mastering and CD-burning capabilities. Sophisticated object-oriented editing. Lots of useful and musically effective plug-ins, including analog modeling effects. Frequency and amplitude-based editing. Superb user support. Stable operation. "Elastic audio" stretching functions simiplify loop-based work.
LIMITATIONS: MIDI editing not as deep as some competing programs. Doesn't support Acidized or REX files, or MIDI effects.
PRICE: Samplitude Pro, $1,249; Samplitude Classic, $649; Samplitude Master, $349 (all list prices)
CONTACT: www.samplitude.com

THE OBJECT OF OBJECT-ORIENTED EDITING

Samplitude has always emphasized *object-oriented editing* — the ability to apply sophisticated editing operations to not just tracks or buses, but individual objects (you can also think of these as "clips"). This process saves CPU power, because an effect need be active only for the duration of the object it processes, not an entire track.

Also, object-oriented editing provides another way to think of automation. Many DAWs work with automation by incorporating read/write buttons on the mixer page. Although Samplitude can do this, its Arrange page is designed to work with each chunk of recorded audio as an independent object, which allows creating automation and effect settings with individual clips. Let's say on a song you want the vocals on the chorus to be a little louder, and have a different reverb setting. You would first split the track where the chorus starts and ends, then open the object editor (see Example 1) which shows EQ, pan stereo enhancer, effects, gain, routing and volume, all in one easy-to-read pop-up screen. Here is where you customize how you want this clip to sound. After working this way on several sessions, I actually prefered it to using read/write buttons in many situations.



Ex. 1: The Object Editor allows transforming multiple aspects of any object, MIDI or audio.

AdIndex

These companies would be very happy to assist you in obtaining more information about their products and services. Please contact them via phone or online. For a better response, tell them "I saw it in EQ!"

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B&H Pro Audio	800-947-5518	www.bhproaudio.com	27, 55
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CAD Professional Microphones	800-762-9266	www.cadmics.com	62
Chameleon Labs	206-264-7602	www.chameleonlabs.com	73
Chris Mara Studio Design & Consulting	615-476-6272	myspace.com/chrismaradesign	70
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MASSEY TAPE-HEAD

Analog Tape Saturation Sound in a Plug-In? Yeah, Right . . .

by Garrett Haines

So let's say you're a Pro Tools user, and your tracks are sounding just too "digital" for your tastes — you want the charming quality of older recordings done on tape, with that mythologized fullness, weight, and bite. And you want it to be straightforward and simple. What do you do?

You look for a tape emulator, of course. But there are so many out there now, where do you start?

You're going to come across something sooner than later, and one of them may be the Massey Tape-Head. And just like all the other ones, it really doesn't sound like an old Ampex, Studer, or MCI tape machine first time you try it out. "Dammit," you may say to yourself. Not to worry; just because these things never sound exactly like tape doesn't mean that you can't color your sound in a subjectively pleasing way. It's all about learning how to use them right, and the Tape-Head is good. Very good.

OVERVIEW

Sporting an uncluttered, simple interface, the Tape-Head has but three controls: Drive, Brightness, and Trim. This straightforward approach rules first and foremost because it makes getting good sounds a function of listening rather than parameter tweaking — which is always a good thing to avoid, when possible.

If you already own emulators like the Crane Song Phoenix, PSP VintageWarmer 2, or McDSP Analog Channel, I wouldn't stop there. You'd do well to diversify your collection with something like the Tape-Head because it really does sound different than its competitors, and adding warmth in the box can quickly turn to adding mud when relying on a single product. It's all about making these things work *together* if you really want to synthesize that analog sound.

But that's enough intro — let's talk about using this sucker, and how it can help you bring some life back to your digital recordings.

APPLYING THE TAPE-HEAD

Using the Tape-Head is a no-brainer choice for drums and bass (two sources that can always use that vintage warmth). For these, start off by setting the Drive to about 9 o'clock, followed by a level check using the Trim knob. Afterwards, audition the Brightness switch to your liking, which often serves as the finishing touch in treating your newly enlivened track.

As said, this doesn't sound exactly like a 2", 24-track machine, but it does sound richer, fuller, and more pleasing to the ear. Likewise, it's fun to use on other sources, in other ways. Cranking the Trim transforms the Tape-Head into a minor distortion box; organ pads, backing vocals, and percussion go from warm to gritty by just increasing the Drive. And if you need more aggressive highs to poke your instrument through the mix, just engage the Brightness (or use the Brightness toggle to keep excess grit in check manually).

Another trick is to run more than one Tape-Head on the same track; add in some filters, and you have a really cool sounding processor. The Tape-Head also sounds fine when placed on instruments in addition to their mix bus. Still, it's important to note that it's easy to overdo saturation plug-ins, so caution is in order. Sometimes it's best to do very little, like using the Tape-Head on a limited number of instruments (*e.g.*, just your drums and bass) and leaving the rest of the mix un-saturated, as this helps increase the sound field's overall depth and believability.

CONCLUSIONS

As with other Massey titles, users are encouraged to download working demo copies for evaluation, so go to www.masseyplugins.com and give it a spin for yourself. You'll be able to process audio without beeps, bypassing, or cutouts; you just won't be able to save your settings until you purchase the plug.

The full version retains settings, allow users to save presents, provides support from 88.2kHz–192kHz, sports an extra "medium" setting for Brightness, and allows automation. And if you're a Pro Tools HD cat, the Tape-Head also has a clip light and a few other useful features.

The Tape-Head is also very DSP efficient — I was able to run almost 20 instances as RTAS plug-ins before my Dual 1.33MHz G4 Mac started to pay attention (that's right — a G4). And speaking of resource efficiency, at under $70 for a plug that allows you to install it on up to three machines, you can't go wrong. In fact, if you're a Pro Tools user, I don't even know what you're doing reading this last line. EQ

PRODUCT TYPE: Tape saturation plug-in for Pro Tools users.
TARGET MARKET: Musicians who want to add some vintage warmth to their recordings, but don't have the option of recording to tape.
STRENGTHS: Sounds great. Easy to use. Low price. Comes with multiple licenses.
LIMITATIONS: None. Yeah, you know it's not the same thing as the real thing, but it sounds damn good.
PRICE: $69 (list)
CONTACT: www.masseyplugins.com

Guitar Player's GUITAR HERO 07

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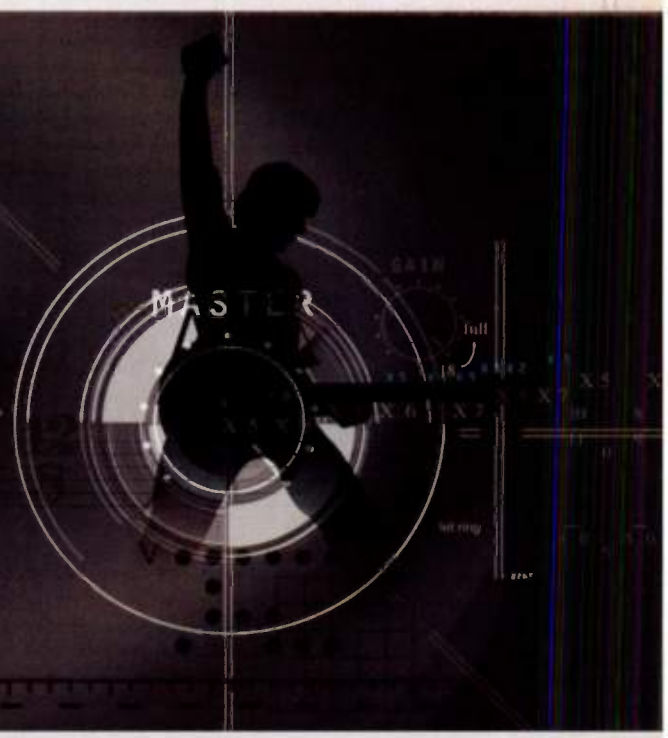

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Entry deadline is July 31, 2007.

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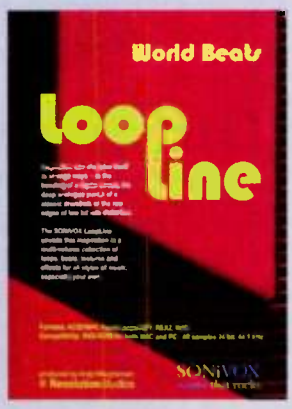
* not a requirement for entry

SONIVOX WORLD BEATS



If there's one element that can spice up just about any music, it's good percussion. Can't find a good percussionist? Thanks to the pattern-oriented nature of percussive parts, loop libraries can be a decent substitute — particularly if they provide variations on themes to stave off boredom.

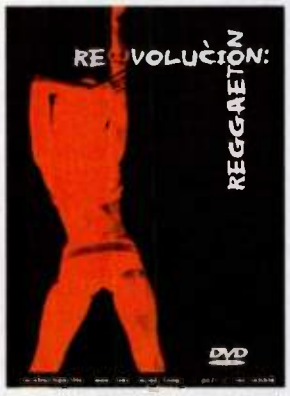
World Beats' loops come in 17 folders, each differentiated by bpm (70 to 160) and to some extent, style. The folders contain loop variations, so you don't have to go nuts with cut 'n' paste to create changes. (This also helps make up for the lack of individual hits, which would have been a useful addition.) The Acidization and REX editing is well above average; props to Sonivox for taking the time to get this right.

You'll find the usual djembes, tambourines, tablas, shakers, and other types of hand percussion, along with some bitchin' Brazilian loops and swing loops (MPC fans, take note). The loops are "bread-and-butter," with few loops of jaw-dropping creativity or flash. But that's not a drawback; it means these files can slide, chameleon-like, into a variety of musical styles — from rock to electronic — and be perfectly appropriate.

The loops (produced by Andy Macpherson) are recorded well, with just the right amount of ambience and presence — check out the example at www.eqmag.com, which also includes some processing to show how a little creativity can twist these loops even further.

CONTACT: Sonivox, www.sonivoxmi.com
FORMAT: DVD-ROM of loop files. 487 Acidized WAV, 487 REX, 487 Apple Loops, 499 Audio WAV (includes some extra long files you can chop yourself); 24-bit/44.1kHz
PRICE: $99.95 list

BIG FISH AUDIO REVOLUCION REGGAETON



I'm not sure how Jamaican dancehall music (*à la* Shabba Ranks) mutated into the latest Latin dance sensation, but it has. However, while the bedrock rhythms are similar, the Latin approach eschews the ultra-sparse Jamaican flavor, instead favoring lots of synths and effects, bigger sounds, heavy processing, fuller arrangements, and a more lyrical approach.

The 714 files are duplicated as WAV and Apple Loops; there are 299 REX files, as some files don't translate well to the REX format. Each construction kit includes a full mix, individual elements, and a folder of drum hits (bonus: load these into a sampler for some exotic kits). Most tempos range from 90–100 bpm, which simplifies mixing and matching files as your host doesn't have to work hard to stretch them. However, there are quite a few different keys.

The overall patina is electronic and danceable, and the individual files are very useable in other contexts — especially hip-hop and rap (and even dance, as long as the tempos aren't too fast; the parts are fairly busy, and can get cluttered in the 120+ bpm range).

Reggaeton is the latest dance flavor, and Big Fish got on it fast. But that didn't compromise the quality of these samples, which are spot on. If you audition this DVD-ROM or the audio example at www.eqmag.com and don't feel an urge to move your body — see your doctor.

CONTACT: Big Fish Audio, www.bigfishaudio.com
FORMAT: DVD-ROM with 28 construction kits duplicated as WAV, REX, and Apple Loops files; 24-bit/44.1kHz
PRICE: $69.95 list

SONY POCKET DIVA

Few sample CD concepts are harder to pull off than vocals, especially because you'll often need to change pitch, and even the best pitch transposition algorithms aren't happy transposing too far. Within that limitation, though, *Pocket Diva* gives you plenty of drop-in-worthy phrases.

Two wish list items: The files are processed with tasty reverb, but most have dry counterparts; I would have been fine with only dry samples — I have reverb plug-ins. I also wish the file name included the key, so I'd know which keys would sound optimum.

Of the six folders on the CD, "Multi-Voice Loops" has both unison and harmony voice parts. "Op-erratic" is closer to liturgical music than opera; "Scat" isn't about Ella Fitzgerald, but more like Enya singing scat. "Single-Voice Melodic Loops" is the big folder here, with 259 files, and you can put together complete melody lines with some of these. "Sound Design" includes very cool, effected vocal sounds, as well as chords; "Words" is mostly sung words and short phrases.

So who's this for? The audio example at www.eqmag.com shows one approach, but *Pocket Diva* is a no-brainer for trance productions — almost all of these would fit on top of a driving dance track. There's also big potential for hip-hop, and even audio-for-video projects (think "ethereal voices against evolving musical backdrops").

Bottom line: This probably won't be the most-used sample CD in your collection, but *Pocket Diva* indeed offers unique, useful sounds.

CONTACT: Sony, www.sonycreativesoftware.com
FORMAT: CD-ROM with 639 Acidized WAV files; 16-bit/44.1kHz
PRICE: $39.95 list

POWER APP ALLEY

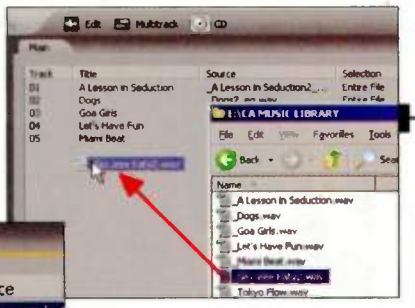
BY CRAIG ANDERTON

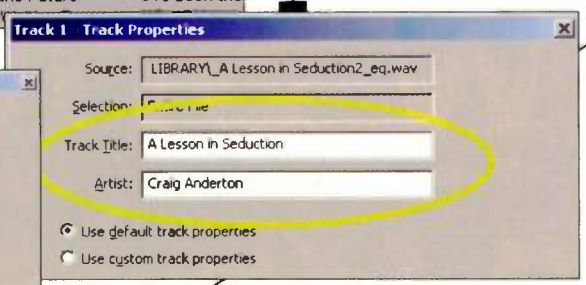
ADOBE AUDITION 2.0

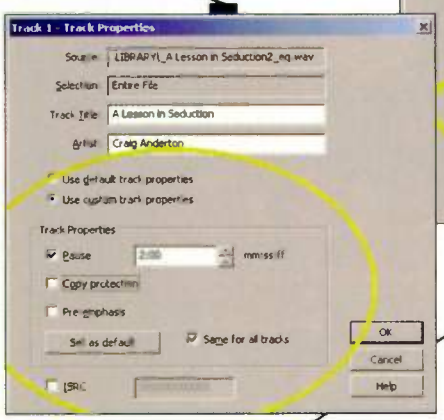
Time for a Quickie – CD, That Is

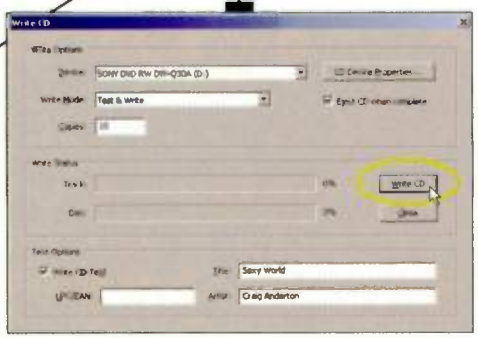
OBJECTIVE: Create an audio CD in the minimum amount of time.

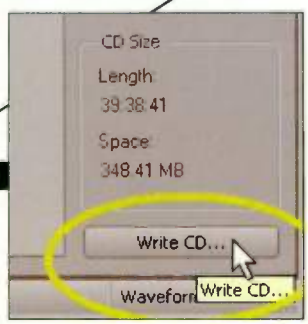
BACKGROUND: Although Audition has many features related to creating a CD, it's also possible to assemble and burn a CD very quickly. This is handy for making rough proofs, handing out copies to band members for practice, and the like.











steps

1. Click on the CD View button, or type 0.
2. Drag the audio tracks (which can be any format Audition supports) you want on the CD into the CD view's main window.
3. Double-click on a track to open its Properties window.
4. Type in the Track Title and Artist. This information must be entered for each track.
5. To set other track properties, click on Use Custom Track Properties. The properties in this rectangle will be applied to all tracks if "Same for all tracks" is checked.
6. Click on Write CD.
7. Fill in the various fields or choose options as needed, click on Write CD, then wait for your masterpiece to finish burning.

tips

- Audition has extensive normalization (to average, not peak, levels) and analysis options. To access these, go Edit > Group Waveform Normalize. Even if you don't plan to normalize levels, the analysis statistics can be invaluable in uncovering files that might have potential problems, such as using only a limited amount of the available dynamic range, or having an unusually high or low Average RMS value.
- In step 2, note that you can drag the files to re-arrange the order.

POWER APP ALLEY

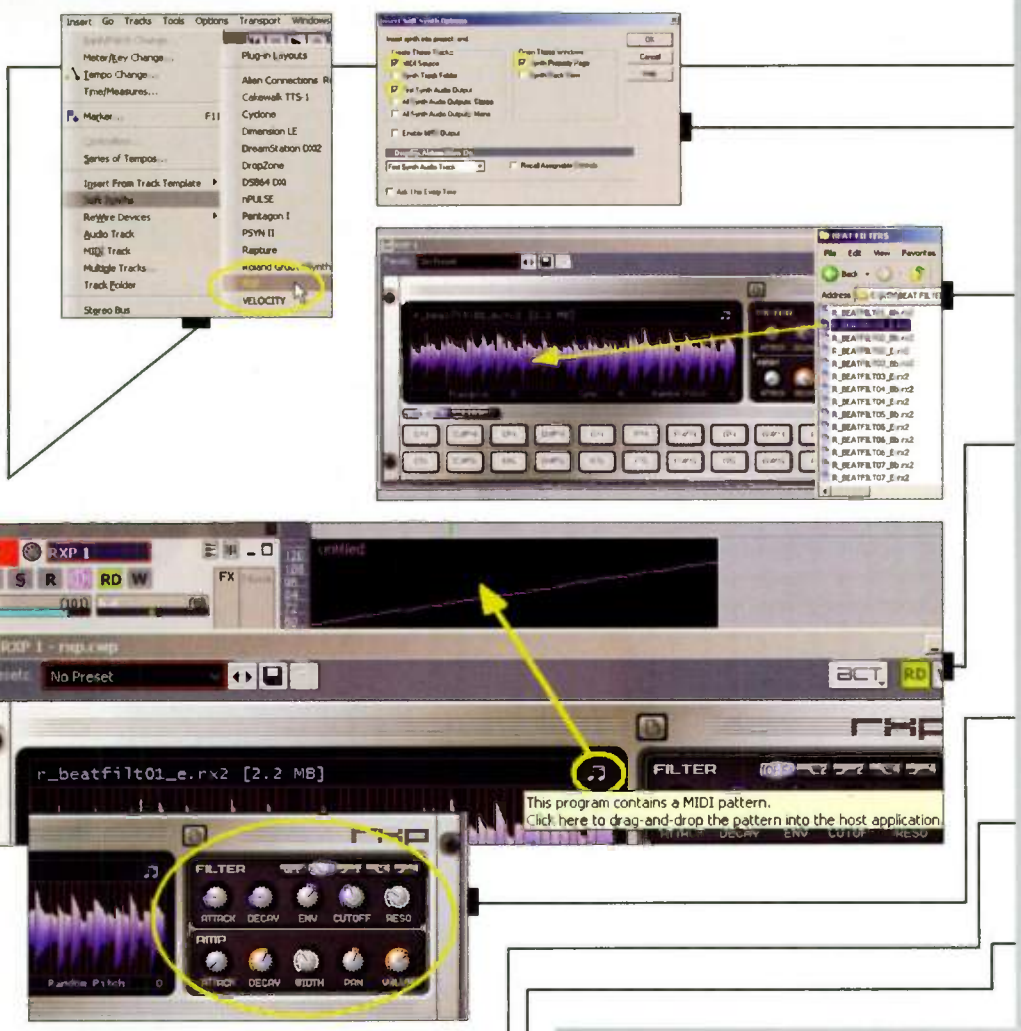
BY CRAIG ANDERTON

CAKEWALK SONAR 6

Play Back REX Format Files Using Sonar's RXP Soft Synth

OBJECTIVE: Be able to use files from REX format loop libraries, or those created using Propellerheads' ReCycle, within Sonar projects.

BACKGROUND: Sonar has always provided native support for the loop-friendly Acidized file format; since Version 5, it has also provided support for REX format files with the RXP DXi software synthesizer. Here's how to incorporate REX files in Sonar.



steps

1. Go Insert > Soft Synths > RXP.

2. When the Insert Soft Synth Options window appears, check MIDI Source, First Synth Audio Output, and Synth Property Page. Click on OK.

3. Drag a REX (.rx2) format file into the RXP's main window; once dragged in, the file shows up in the window with vertical lines indicating the REX file's "slices."

4. Click on the Note icon, and drag it into a Sonar MIDI track. This provides the MIDI track that triggers each audio slice sequentially when sequence playback begins.

5. You can apply a filter and amp envelope to all slices (not individual slices). The filter envelope includes attack, decay, and amount (positive and negative) parameters. The filter includes cutoff and resonance. The Amp envelope includes attack, decay, and width parameters, as well as overall pan and volume.

6. To play individual slices, click on Slice. The pads toward the bottom map the file's first 24 slices to MIDI keys.

7. To audition the entire loop from a pad, click on Loop. The pads now play the loop with transposition from –12 to +11, depending on the pad.

tips

- In step 4, if you click on the Note icon instead of dragging, Sonar will create a new project window consisting of a single MIDI track with the REX file note data; its tempo equals the original file's tempo.
- In steps 6 and 7, you can either click on the pads or play them from a MIDI keyboard (assuming the MIDI track assigned to the RXP receives the keyboard data).
- Selecting Automation Write and varying the filter cutoff control can create some very cool effects.
- You can click and drag on the various slices to rearrange their order. However, the MIDI file doesn't change to reflect these edits.

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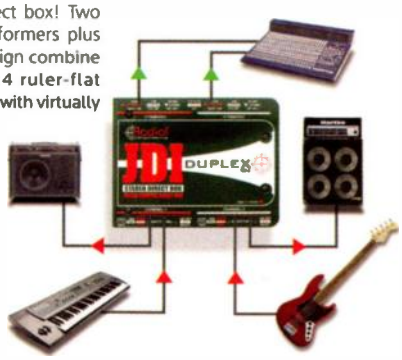

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IK Multimedia

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www.ampegsvx.com
954-846-9101

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Gefell

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www.neumann-gefell.com
604-942-1001

Studiofoam SmartPak

Auralex Acoustics, Inc.

Now Available

Auralex Acoustics once again redefines the standard for delivering world-class acoustical products at the best value with the introduction of SmartPak™, a revolutionary new way to package and transport Auralex Studiofoam®.

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www.auralex.com
317-842-2600

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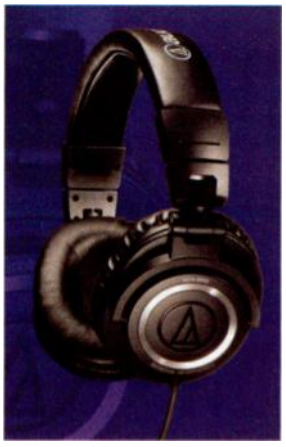
SRP: $1,100

www.jblpro.com
818-894-8850



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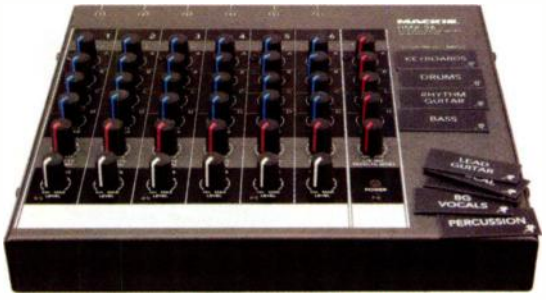

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Mackie Onyx 400F

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Now Available
The Mackie Onyx 400F Premium Studio Recording Preamp is a professional 10x10 FireWire audio interface featuring Mackie's acclaimed Onyx mic preamps, 24-bit/192kHz converters, and Tracktion Music Production Software.
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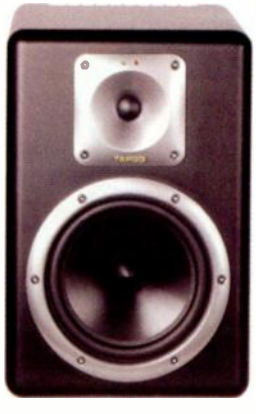

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ROOM w/a VU

by Salvatore Russo

STUDIO NAME: J Street Recorders
LOCATION: Sacramento, CA
CONTACT: www.jstreetrecorders.com
KEY CREW: Brian Wheat, Michael Rosen, Dan Wallace
CONSOLE: 56-channel Neve 8108
COMPUTERS: Mac G4, G5; PC (serves as loop station)
INTERFACE: Apogee Ensemble
RECORDERS: Digidesign Pro Tools HD, 002; MCI JH16-24 24-track 2" tape machine; TASCAM X-48 48-track workstation
MONITORING: Tannoy System 15 DMTII; Yamaha NS-10
MICS: AKG C414 B-ULS (2), D112; Audio-Technica AT4033 (3), AT4047 (4), AT4050/CM5, AT4051 (4), AT4060, AT815ST, AT841A, ATM25 (2); Avlex CI35 (4), AVS20 (4); Blue Bottle; Royer R-121 (2); Sennheiser MD421 II (4); Shure KSM44 (2), SM57 (4), SM58 (4), SM81 (2); Superlux CM-H8B (2), CM-H8D, CM-H8G
PREAMPS/DI: API 543 (2), 550b (2), 560 (2), 7600 (2); Avalon U5; Millennia HV-3D, TD-1; Neve 1073 (8); Vintech Audio Model 473
COMPRESSORS/LIMITERS: Behringer Multigate Pro XR4400; dbx 160A (3), 160XT (3); Empirical Labs EL8 Distressor (2), Millennia HVD-8, STT-1; Teletronix LA-2A (2), 1176 (2)
EFFECTS: Alesis Quadraverb; Aphex Aural Exciter Type C; Digitech Vocalist Access; Ensoniq DP/4; Eventide H3000 D/SX; Lexicon PCM-80; SPL Transient Designer 4
NOTES: Upon the completion of 1986's *Mechanical Resonance*, Tesla bassist and gear hound Brian Wheat (pictured) began forging a plan to one day own and operate his own studio — a dream that was realized in 2004, when Wheat and cohort Marcos Busto opened up J Street Recorders. Nail by nail, Wheat and Marcos built the facility from the ground up, working from Wheat's design as to what he, as a musician, envisioned his ideal studio to look like and sound like.

Replete with a modified Neve 8108 courtesy of Pat Schneider, J Street Recorders is a perfect balance of vintage analog gear and modern state-of-the-art equipment — an amalgamation of some seriously sweet tools that made Wheat's personal studio a utopian environment to work on the recent Tesla releases *Real to Reel* and *Into the Now*.

But J Street is not a studio that Wheat holds close to his chest; he has opened the doors to major artists such as the Deftones and Jackie Greene. As a result, J Street has turned into a hub for his own production company, as well as a vehicle for serving the community of musicians with whom he has developed close ties over the course of 20 years in the music business.

Finishing up work on the next Bullets and Romance album (a project Wheat says he's extremely proud of), the bassist-turned-producer/engineer says that the main purpose of opening J Street wasn't just to record his own music, but to provide a service to up-and-coming acts, as well as old-time friends.

"With this facility, an artist or band can make a record for a fraction of what I had to pay in the glory days of Tesla," he says. EQ

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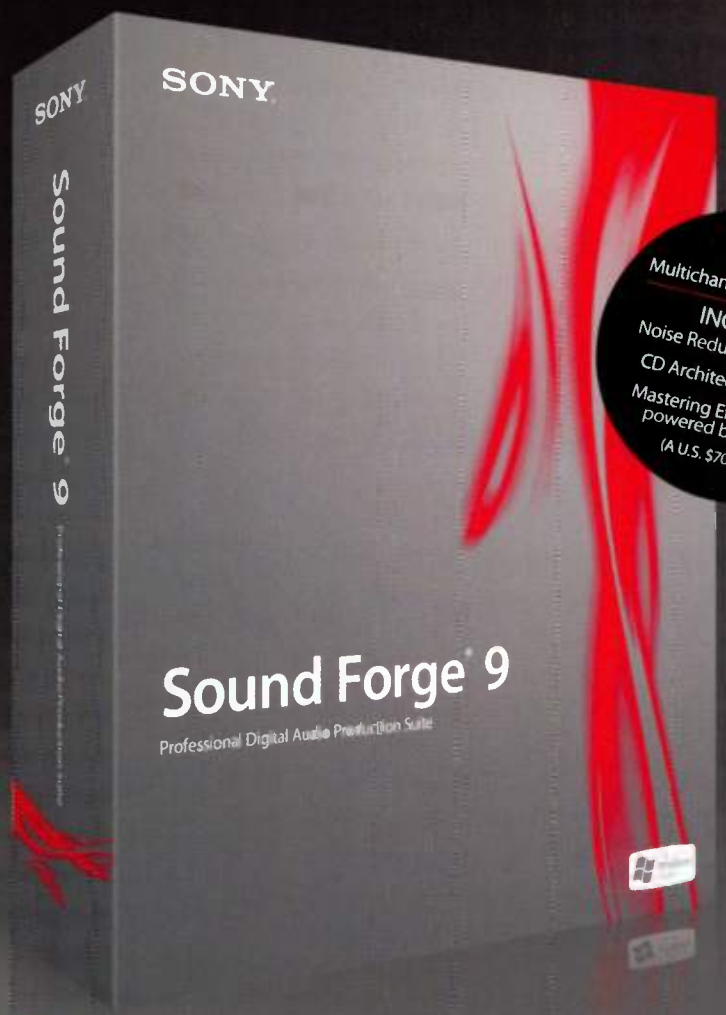

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Multichannel audio support

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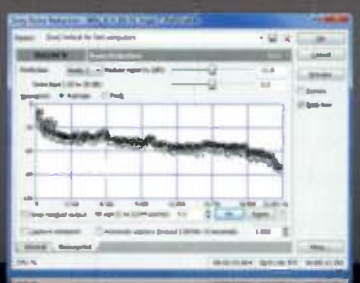
Noise Reduction 2 plug-ins
CD Architect™ 5 software
Mastering Effects Bundle powered by iZotope™
(A U.S. $700 value)


Sound Forge® 9


CD Architect™ 5


Noise Reduction 2


Mastering Effects Bundle powered by iZotope™

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- Individual 48V phantom power
- 60dB pad/trim gain range
- Stand-alone mixing
- 6 TRS analog inputs
- 10 TRS analog outputs
- Separate main outs
- Main volume knob
- Headphone volume knob
- S/PDIF digital I/O @ 96kHz
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- Sample-accurate MIDI
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