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THE STUDIO ISSUE

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IN STUDIO
THE CRYSTAL METHOD
ALICIA KEYS
ROB LEWIS
CHRIS LORD-ALGE

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JUNE 2006

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06/06 CONTENTS

FEATURES

Contents photo: Bradford Noble, noblephoto.com
Front cover: Syn Studios, Tokyo, courtesy of Nick Woods

I can
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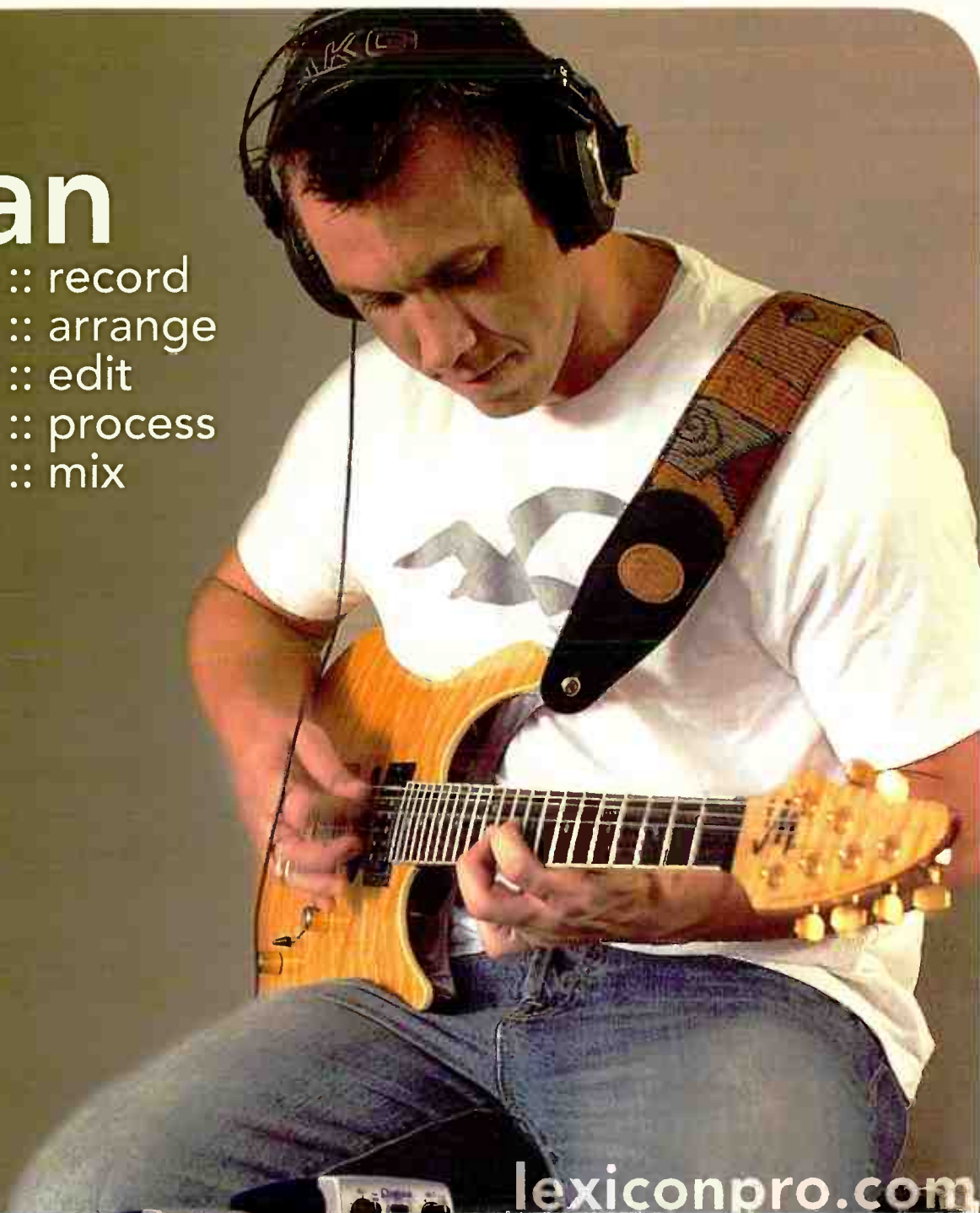
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Talk Box

STU-STU-STUDIO

Yeah, well we're pretty used to it at this point.

You know what we mean.

It's the look that passes across a passel of upturned faces when you've said something that baffles. Single eyebrow raised, head tilted. It's like showing your cat a mic pre: They just don't get it. Because unless it can be eaten or attacked [or a third option that we're too family friendly to mention this soon in the mag], its full dimension eludes kitty capture.

And so it goes with this month's *bete noire*: THE STUDIO.

Do we eat it, attack it, leave it for dead, transform it, recreate it, or all, or none, of the above? The studio space, where music making is captured in little boxes for a document that will far outlive most of us, *is* changing and *has* changed in all kinds of wild and wooly ways.

Older, bigger dinosaurs, in a development that will surprise absolutely no one who's been awake the last few years, are dropping, frozen out of some of the more nimble futures playing out in people's bedrooms, garages, and on their laptops. Younger, smaller places, not trouble free by any means, are up against round hole-square peg problems with both space *and* technology. And through it all the stunning and almost obvious admission: It's still about just getting the sound into and out of the little boxes.

So we start at the start with JEFF GLIXMAN's pre-production primer, J.J. BLAIR's big studio-small space crammed creation, room tuning with RUSS BERGER, and room design with LARRY SWIST; we trundle headlong into How To: Re-Mic, Protect Your Power, Handle Delays and Reverbs, and Master In Your DAW; and finally, *tete à tete's* with CHRIS LORD-ALGE, ROB LEWIS, ISIS, and THE CRYSTAL METHOD.

Did we mention the gear lunacy with THE TOP 10 PIECES OF HARDWARE THAT STILL MATTER, the WAVES HARDWARE/SOFTWARE COMPARISON SHOP, INSIDE EVENTIDE, and all the other scathingly honest review action therein?

We just did? Ohhhh . . . purr-fect.

And the tidewaters of confusion recede. . . .

Cheers,

CREATING CHRISTINA

PROJECT: Christina
Aguilera's *Back to Basics*
DATES OF RECORDING:
Jan. 2006 – April 2006)
STUDIOS: Chalice Recording
Studios, Record Plant
LOCATION: Hollywood, CA
OFFICIAL ALBUM TITLE:
Back To Basics
PRODUCER: Rob Lewis
ENGINEER: Oscar Ramirez

Working with Christina taught me a lot; it was like going back to school. I had first became acquainted with her in 2002 through musical director extraordinaire Rickey Minor, who had called me to audition for her upcoming tour. After becoming her musical director and touring with her for the entire year, she called on me to arrange her Grammy performance of the song "Beautiful," for which we had a 21-piece orchestra, a 14-voice choir, PLUS a full band. After a string of performances, I finally got the opportunity to work with her in the studio when she contacted me to produce her vocals for Herbie Hancock's album, *Possibilities*, which earned her and Herbie a Grammy nomination. That's where our studio relationship really started to develop.

I've worked with a lot of vocalists, especially female vocalists, but Christina's work ethic is unparalleled. She is truly a perfectionist, which has strengthened me (as a perfectionist). Every note and phrase HAD to be the best with her, or she would sing it until it was. And her engineer, Oscar Ramirez, was great. He's the quickest guy I know with a Pro Tools rig, just the way that he catches punches, heals the separations, and cross fades. In fact, I'd call him "Oscar the Great," and between him and her it was all done right before you could even say, "Give me a playback."

We tracked her vocals using a Telefunken ELAM 251 with an esoteric Avalon M-5 mic pre *(Editor: presumably an Avalon M-5 from the looks of Chalice's site)*. Of course, it was all recorded with Pro Tools HD3, but done on a SSL J9000 console with 96 inputs, with playback coming from these custom TAD Auspergers mains.

> **It has gotten to the point now that a dude that makes a beat and sells it to an artist, or a label, is now somehow a "producer," but they aren't real producers. Quincy Jones is a producer. David Foster is a producer.**

Sometimes during the sessions we would set up the Telefunken, she would sing, and I would feel like that take should be a wrap — that she had nailed it first-take. "Sounds great to me!" But she would search even deeper for the best tonality, the best phrasing, and the best take, which in turn is what creates the best records.

My involvement outside of producing Christina's vocals was pretty wide ranged; from live string and horn arrangements to playing (and producing) live guitars, bass, and keys on top of the beats that were provided by the other producers: people like DJ Premier, Rich
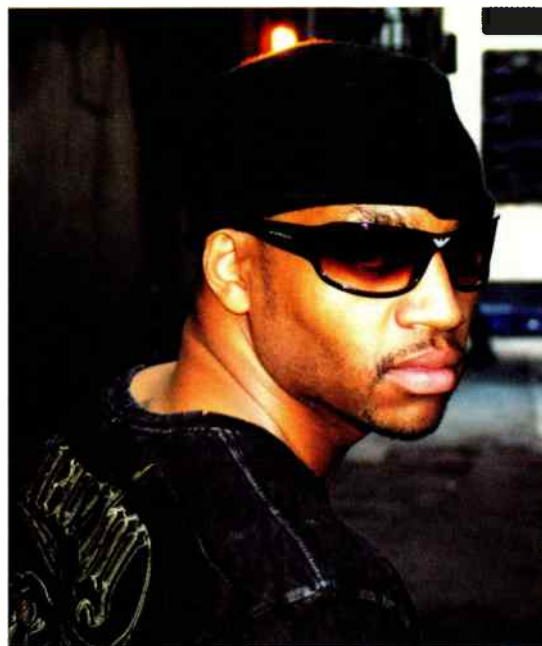
Harrison, Kwame, and Big Tank. I would come in to see Primo using the MPC 60II, surrounded by a Triton, a Fantom, a couple random modules, etc. And then I would see DJ Premier spinning the turntables. It was the craziest thing — finally working with all these people that I've respected for years. The feeling was surreal.

Chalice Recording Studios has always been one of my favorite places to record, because the vibe there is extremely comfortable. I was one of the first producers to work there when it first opened up, producing Kelly Rowland from Destiny's Child for her movie *The Seat Filler*. We were in the A Studio — which is decked out with everything from the SSL to the Studer A827 — real top-of-the-line stuff, of course. It's a state-of-the-art studio, all the way down to the light fixtures. The rooms are tuned so well — you just feel good listening in there when all the hard work is done, so it's a great place to have those "listening meetings" for label heads, A&R representatives, etc. And we cut it all in there: strings, horns, and Christina's vocals.

It was great to be as involved as I was in the whole process. It has gotten to the point now that a dude that makes a beat and sells it to an artist, or a label, is now somehow a "producer," but they aren't real producers. Quincy Jones is a producer. David Foster is a producer. These guys know how to arrange and produce vocals — how to relay to a musician what he/she should play. They know how to see a record from its very conception, from just a simple melody on a guitar. And they know how to make that simple melody grow into a BIG song. They don't just write. They don't just engineer the proper mix. They truly produce the music. And it's people like that — the greats — whose timeless works of art served as my textbook when we stepped in for these sessions. EQ

World Radio History

Success Story
by Matt Harper

ISIS

LABEL: Ipecac Records
CONTACT: sgnl05.com
LOCATION: Los Angeles, CA
PAST PRODUCERS: Matt Bayles, Mike Hill

Atmospheric. Cerebral. Monolithic. Many adjectives have been thrown around throughout the past eight years in an attempt to describe ISIS' sometimes-serene/ ofttimes-crushing avant-garde, post-metal experiments in sonic density. Arising from the Boston area in the late '90s, ISIS (composed of bassist Jeff Caxide, guitarist Mike Gallagher, drummer Aaron Harris, electronics coordinator/guitarist Cliff Meyer, and vocalist/guitarist Aaron Turner) quickly commanded the attention of the hardcore/metal community with their debut EP *Mosquito Control*, in which they constructed a highly textural, yet oppressively heavy sound from the foundation laid by bands such as the Melvins, Godflesh, and Neurosis. Continuing through albums such as 2001's critically acclaimed *Celestial*, and up into their latest release *Panopticon*, ISIS have quite obviously evolved from a group embraced solely by the open-minded (and albeit marginally populated) segments of the heavy music community to becoming a name often praised by music aficionados in general for their inventive and multi-faceted brand of audile art. With the success of the previously mentioned, Ipecac-released, *Panopticon*, numerous live dates both in the States and abroad, and highly gossiped about, illustrious collaborations with members from some pretty high-profile acts (TOOL?), ISIS seem poised to garner even more praise, and accumulate even more attention, than what would have been possible not even five years ago, when the collective public palette seemed completely disinterested in pensive, dynamic heavy music.

"The peripheral is really important to us," vocalist/guitarist Aaron Turner expresses when asked about the multi-layered, and incredibly nuanced, sound ISIS is regularly celebrated for. "Injecting an element of mystery into the music is one of the things that we try to focus on the most: the little things that reveal themselves after repeat listens, that are suggested rather than obvious, the nuances that are sensed rather than heard immediately. From the very beginning, we've made it a point to play more with inventive structures, to steer clear of the verse/chorus/verse/chorus routine. We don't emphasize vocals. We don't really have anything that could be called a solo. These things — these aspects of rock music — don't really interest us."

Listening to previous efforts such as the *Red Sea*, and then putting on latter-era ISIS *i.e. Oceanic* or *Panopticon*, it's remarkable how much the band has moved out and away from the confines of hardcore/metal-based music and into a more progressive realm where a much greater dynamic range is covered and emotions are explored beyond the requisite discontent found in most bands that down tune their guitars and pummel their drum sets. Concerning this growth, Turner comments, "I think our evolution has been steady and fairly constant. From our inception, the more we wrote the more we gravitated toward progressive structures — concentrating more on atmosphere, melody, and texture — while focusing less on the 'bludgeoning riff approach,' though that's still a definite part of our repertoire. It's more cerebral now. With time we've gained a lot more control over our instruments, and we've exerted a little more restraint while focusing more on subtlety."

ISIS' preoccupation with covering more sonic ground than many of their peers has made Ipecac Records (the label founded by left-of-center musical guru Mike Patton of Faith No More, Mr. Bungle, Fantomas, Tomahawk fame) a logical home for the band — as well as a great conduit for further exposure. "After years of working with numerous labels, the time came when we felt like we needed a home," Turner explains. "The other labels we worked with were extremely supportive, but had limited reach in terms of distribution. Ipecac is, for us, a very good middle ground. It's not the bloated excess of a major label; but they have a really good reach, a really good business philosophy, and a great aesthetic. Plus, our label mates keep us from being easily pigeon-holed like we would if we shared a label with just metal-based bands."

Currently ISIS is gearing up to hit the Sound City studios with producer Joe Barresi (Queens of the Stone Age, Bad Religion) to record their fourth full-length release, an album that they have been multitrack demo-ing in their rehearsal spot — a tactic they are just now employing in the pre-production stage. "In the past, when we had worked with Matt Bayles, we never had any demo-ed versions of our songs — nothing of listenable quality. So when we went into the studio we were going in blind to a certain extent. He did a great job of putting our tones together — balancing them and representing us. With this record, we are recording more on our own, which has helped us gain greater insight into how to achieve the sounds that are in our heads."

Considering the products of past efforts, and collaboration this exquisite, how can the listening public be anything short of anxious? **EQ**

MAKE MINE A RE-MIC

After nearly 15 years of never being completely happy with the room sounds that I captured for drum tones, and not being able to properly compensate with external reverbs, I came to a point where I thought, "Why even bother?" Perhaps for a jazz recording, or something similar where you're after a pure, unproduced sound, leaving the drum tone as it stood post-tracking could be the best course of action, but for much of today's music there's little sense in working that way, and sometimes your rackmount just doesn't cut it. So I started experimenting with re-recording the room tones during the mixing process, and I soon noticed a great difference, a definite positive change, in the finished product(s).

At Sound Logic, a studio I own in Indiana, I have a speaker system mounted on the wall of the live room. The original intention in setting this up was to use it for giving a playback to the artist, which I do occasionally to avoid the hassle of headphones, but I've since learned to

sub mix feeding the speakers usually has the kick at around 40 percent volume, the snare at 100 percent, toms (which I manually gate, or edit, in Pro Tools) at 80 percent, hi-hat at 40 percent, and overheads at 20 percent. This is the key technique: controlling the mix of the room sounds. I pump my sub mix into the studio at a decent volume, usually around 105dB, and then physically move the two mics around until they are placed in a manner that I think will give a good sound. Afterward, it's back to the control room to listen to the output of the two mics, and ultimately decide whether or not I'm getting the room sound that I'm going for. Nearly every time the mics end up at two opposite corners of the room — around 15 feet off of the speakers and pointed directly at them in omni mode.

You'll notice from the above that the snare is the loudest drum in the sub mix; and I do this for two reasons: I use the newly recorded drum tones as the reverb

The first, and easily most painful, step of the process is to empty the entire live room. I start by moving everything out of the room, except for a few movable acoustic isolation panels to manipulate the sound later on.

for the snare in the final mix, and I always make a sub mix of the drums, and then smash the hell out of it with a good compressor (like an Altec 1712A) for the final mix. By setting the snare that loud, it's able to withstand the com-

use it for a greater gain: pushing the drum tracks through the monitors and re-miking to get a different room tone. Even though I'm fortunate enough to have a great sounding 36-foot wide live room with 15-foot ceilings, I still find myself using this re-miking trick on nearly every mix — so it's something you might want to consider.

The first, and easily most painful, step of the process is to empty the entire live room. I start by moving everything out of the room, except for a few movable acoustic isolation panels to manipulate the sound later on. Afterward, I set up two mics — usually large diaphragm Neumanns, or some condenser that I can set to omni. The beauty of it all is that I can then go into the control room, make a sub mix of the drums, push it back out to the room, and grab a different room tone. Each session calls for a different tactic, but the drum

pression that I put on all of the drum tones that I use in the final mix.

Every different room has its own sound and, of course, not everyone has the luxury of having their own thousand foot room to play around with, but you can use others' space to your advantage. Record your best guess of a two-track mix of your drums in your room, and then take it to your local church. If the band you're recording is playing at a large venue that is acoustically superior, try to run it through their system while the band is setting up for a soundcheck. The only notable disadvantage of doing it this way (unless you are working with a portable system, such as an Mbox and a laptop) is that you will not be able to manipulate your drum sub mix; but nonetheless, with a little time and effort you will be amazed with the sounds you can get from trying this tactic in different rooms in your area. EQ

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Punch In

by Lily Moayeri

JUANA MOLINA

"The recording process is like catching a very strange bird with your camera, like an instant picture of the music at the moment you are doing it," reflects Juana Molina. "You can try and repeat the picture, but you won't have it. You will have maybe the back or the beak, but it won't be as good as you saw it before."

Molina is speaking from her home studio in Argentina, where she writes, records, and mixes her one-woman albums, now numbering three. On her latest, *Son*, the focus can't help but shift to the sounds emanating from her guitar(s) (primarily a 1961 Martin 00-21, Martin 335, Ibanez Roadstar II, and an "old Yamaha acoustic"), all of which are miked raw and sent in the same fashion.

This ready-to-go approach is what Molina has counted on for making music since 1999. At that time, she shifted her operation, from a rinky-dink four-track to incorporating her home computer (currently a Mac G5) while using the latest version of Digital Performer and a Mackie 1604-VLZ Pro 16-channel mixer ("some channels don't work as good as before," she says).

"I like first takes," states Molina. "First takes have this fresh way. It has the research [and] all the spontaneity of what you were looking for. You can fix it if there's something really bothering you, or wrong, but it won't change the spirit."

The vocals of *Son* benefit from a similarly simplistic recording method, with a Shure SM58 serving as the rough track mic ("it's a little duller and not as high-fidelity and you lose a lot of frequencies, even if it is warm," she says), and a Neumann TLM 103 for the final sessions ("it takes a lot of the breath I have naturally," she says). To capture ambient/room sounds, Molina relies on an Audio-Technica AT822. "I put the microphone in the middle and that's it," she says. "It has all the highs and the small things. I hear more things with the microphone than with my ears, especially outdoors. There's some kind of rumble, very low, I don't hear it, but the microphone feels it and records it."

All of Molina's material is sung in Spanish, with her hollow, throaty utterances serving as seductive conduit. This can take the form of almost no sound at all, such as on "Las Culpas," another product of her one-take mentality where she uses a Lexicon MPX on both her vocals and her guitar. Alternatively, it can change form more than once in a song such as "Micael," where she shifts from hypnotic to disturbed.

"Micael" originally started as a Christmas song Molina borrowed from her daughter's school to perform at the Disney Concert Hall two years ago — taking only the melody while changing the lyrics entirely. Bells that she used at the live performance, however, weren't at her disposal during recording, so she recreated their sound on the keyboard. Additionally, she thought of having gongs as part of the song, making it more complex with increasing rhythmic and instrumental parts.

"We put five [gongs] on the floor so you have this very dull, metallic sound," Molina explains. "We recorded with the stereo mic in the middle, so the stereo in the gong is a natural stereo. I hit the gongs with the special sticks they have and recorded the figure I wanted to have. Then my friend wanted to play too, so he recorded the second one in a different layer. When I had everything recorded, I heard something that wasn't recorded. I cut some of the sounds (especially the high, tiny sounds), got that particular sound and pasted it where I was really listening and it had to be and wasn't because we hit the wrong gong while recording."

She continues, "Music goes beyond technology. There are amazing records technical-wise that sound big, huge, but they don't transmit anything. If you can transmit what you want through what you have, that's good enough."

JUANA SAYS

I have a Mac G5 and use Digital Performer. All the instruments are connected to a mixer, an old Mackie 1604, so I can record whatever comes to my mind without having to plug and unplug anything. From the Mackie, I go straight into the MOTU interface to convert the analog sounds to digital ones (I wish I had an analog studio, but it's too expensive and complicated).

I use two different mics: a Shure SM58 and a Neumann TLM 103, for vocals, drums, guitars and everything that needs a microphone. I also have the guitar plugged in. Keyboards are recorded direct, also is the bass. I am not a very tech person, so my studio is quite simple. I don't update it at all. Sometimes I have to update the software; some others, the computer, but that's it. When I start a recording, I also start mixing. I don't record all the tracks and then see how I mix it: everything is already very close to what is going to be at the end during the process.

Photo: Amy Whitehouse

LISTEN HEAR
MITTEN [STATE] TRANSMISSIONS
Collection (WHFR.FM)
Produced by: WHFR.FM

A four-CD (and bonus DVD) boxset chock full of
live, advance, rare, and mostly exclusive tracks
from some of Michigan's finest artists — from Jason Voss to Hive Mind to Wolf
Eyes. This collection is absolutely enormous, with more than 4 hours and 44 min-
utes of music that runs the gamut from rock to noise. In addition, the DVD has
been compressed to bring you almost 3 hours worth of live performances from
the much-buzzed about Ear Candy Festival. This takes nerves of steel to make it
through, but the pay-off is huge if you dare the journey.

TIPBITS: Making Fat Patches with MX4 2.0

Subtle (emphasis on the *SUBTLE*) pitch modulation is a key to fat synth
patches. To that end MX4 2.0 gives you an unprecedented degree of
control over many aspects of detuning.

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1) analog button — when enabled, each note produces a slightly fixed
pitch offset.

----

2) stereo detune — (available when stereo button is engaged). The
feature enables an additional oscillator for each of MX4's three oscil-
lators — slightly detuned from the original. The amount of detune is
controlled with this slider. Start with around 15–20% and adjust to taste.

----

3) voice multiplier — layers an additional copy of the MX4 voice for
a bigger sound. Start with a value of two — you may have to turn down
the main volume slider to allow for additional headroom. Bass or
other mono patches may benefit from a setting of 3 or more.

----

4) detune — controls the amount of detune for unison voices —
important when used in conjunction with the voice multiplier. A value
of 6–8 cents at a constant pitch ratio (CPR) works well.

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5) pitch modulation — apply a small amount of LFO modulation
(the random walk waveform works nicely) for pitch variation that con-
tinues after the voice is triggered. For maximum motion, apply a
dedicated LFO to each oscillator and make sure the rates of each LFO
are slightly different from each other.

THE MAGNIFICENT 7

NICK RASKULINECZ, he of Foo Fighters and Velvet
Revolver fame, sits down with *EQ* for a brief seven-ques-
tion chat about his experiences recording balls-to-the-wall,
orthodox rock band Fireball Ministry on their latest ornery
opus, *Their Rock Is Not Our Rock*. *EQ*'s Jason Lally gets
the straight dope, and then peddles it straight to you.

1: Why did you record Fireball Ministry the way you did?
Nick Raskulinecz: We wanted to get a real "live" feel
on the record this time, so we tracked John's drums and
Jim's rhythm guitars at the same time.
2: How'd recording Fireball Ministry differ from other pro-
jects you're working on?
NR: There's not nearly as much pressure as other projects
because we're all such good friends. We have a total blast
when we're recording. There's no time spent getting to
know each other and figuring out what the boundaries are.
We all know what we are capable of.
3: Did any "happy accidents" happen on this record?
NR: Probably the coolest accident on the record was
finding an old Marshall 100-watt head that hadn't been
used in about 100 years but sounded so good that it
ended up being Jim's sound for the whole record.
4: The future scares me a little, given the speed of the
industry; where do you see "the professional" producer in
say, roughly five years?
NR: Hopefully out of the house and back in the big, kick
ass, old pro studios!
5: Yeah, not bloody likely, man, but that's a conversation
for another day. Any tricks you can share with us?
NR: Recently, I recorded through the electronics of a
Studer 800, without using any tape, into Pro Tools HD.
There's something interesting about it. I'm gonna keep
playing with it.
6: Are there any artists out there that you'd like a shot at
producing?
NR: Rush. That would be my dream album to make.
Nobody plays like those guys anymore.
7: No one ever tells me the truth, but in the studio with
Fireball Ministry, were there any sex, drug, and rock 'n'
roll?
NR: There was all of the above. That's all there was. That's
what FBM is all about. Except for one thing: You left out
the motorcycles!

Punch In

LOVE LETTERS FROM FIGHT FANS

THE TUBA TERROR CONTINUES...

Supposed journalist-editor,

After reading your puerile editorial in the July 2005 [The Guitar Issue] EQ, it simply reinforced my opinion concerning the demise of our industry. It is ignoramuses like you with no knowledge of traditional music or music in general who spread misinformation, ignorance, and prejudice to the uninformed.

First, I am a tuba player.

As in the case of any other traditional instrument, I have spent many years, including four years at the Curtis Institute of Music, studying, practicing, and perfecting my skills as a tuba player. I have performed with the Philadelphia Orchestra, Symphony of the Air, Radio City Music Hall, Goldman Band, and U.S. Air Force Band among many other organizations. I earned a very good living for 45 years as a tuba player.

That I don't know three basic chords on the guitar had very little effect on my sex life.

I have operated a very successful recording studio, Sear Sound, in New York City for the past 42 years.

If you had ever attended an orchestral or operatic performance, you might notice a very well paid tuba player as part of the ensemble.

It is a journalistic disgrace for you to have taken such a stupid position. For shame!!

Walter Sear

NOT GETTING IT: A STUDY IN CONTRASTS

Nathaniel,

I was not impressed with your recent article in EQ magazine [January 2006, The Wrong Issue]. I would have assumed that a person of your stature in the recording industry would have contributed to an article that encouraged up-and-coming producers/engineers to earn respect from the recording community through innovative thought and graceful behavior. It would seem that you stand for the opposite end of the spectrum, however, which, after visiting your website, seems to fit perfectly with your list of clientele (high dollar pop garbage).

Despite what you may feel, there are boundless opportunities available for the intelligent and humble producer/engineer who wishes to be more receptive to the desires of new and innovative artists. It simply takes having an open mind to challenge and perhaps even change the standard of what sounds "good."

I once looked at your reputation with feelings of respect. I now view it with pity, for it seems that you have lost sight of what producing music is really all about. Or did you ever really know what it was?

It goes a lot deeper than golden ears and a studio with no walls.

Respectfully,
Robin Roberts
M. U. B.
Producer, Engineer

NATHANIEL KUNKEL responds: *Did you think that article was serious? If not, I'm not sure I understand your letter. But, in fact I agree with you wholeheartedly that, "there are boundless opportunities available for the intelligent and humble producer/engineer who wishes to be more receptive to the desires of new and innovative artists."*

That article was satirical.

*I'm sorry you didn't find it funny. But that is what it was meant to be. **A list of what not to do**, in a Machiavellian sort of way. You were supposed to laugh. Not get bummed out. I would elaborate more but I think you misunderstood the article. You may not have found it funny, and that I can accept, but don't think for an instant that I condone those pointers. They are the fastest path to failure. Presented in a funny kind of way.*

And even though your letter was nasty and hurtful to me (and my clients), you did speak your mind. And contrary to how you (incorrectly) feel about me, I respect you for that. Speaking your mind is the only way that this industry will continue to innovate and, how did you say it? "Challenge and perhaps even change the standard of what sounds 'good.'"

I couldn't have said it better myself.

SHORT, SWEET, PETITE

The Music Software Revolution issue [April 2006] is a simply great issue. Individual stories create a history.

Brilliant and obvious.

Antoni Ozynski
PSP

NOT-SO-SHORT, NOT-SO-SWEET, & NOT-SO-PETITE

We've never met but I read EQ each month and actually used to write for the mag until a few years back. Ah, but that is a story for another time.... I am writing this note to say thanks for the cool cover story about the origins of this crazy music software biz, and am hoping that this is only part 1.

Why is that?

Because even though you have covered some great moments and interviewed some of the best you have also missed a couple of the early originators that have made more than a huge difference, not to mention sizable contribution to the world of music software. The duo of whom I speak are two dear friends of mine, Gerhard Lengeling and Chris Adam who, along with Clemens Homburg, created one of the industry-standard programs by the name of Logic Pro, formerly eMagic Logic Audio, formerly C-LAB Creator and Notator.

I was the guy who introduced Creator and Notator to America and was a long time tech evangelist and face for both C-LAB and eMagic (as well as starting up eMagic Inc. with Sven Kindel here in Nevada City) until I left the company in 1996 to pursue a more musical life once again.

I am certain you are aware of these cats, but why they were not included when you have so many of the others that have helped make our modern musical world a better place, I have no clue. Perhaps it's due to some contractual nonsense with their new bosses at Apple or, God forbid, just an oversight on the magazine's part. I mean, bro, these days Gerhard lives just down the road from your office and I am sure he would love to talk about his and Chris' contributions to the industry if given the opportunity.
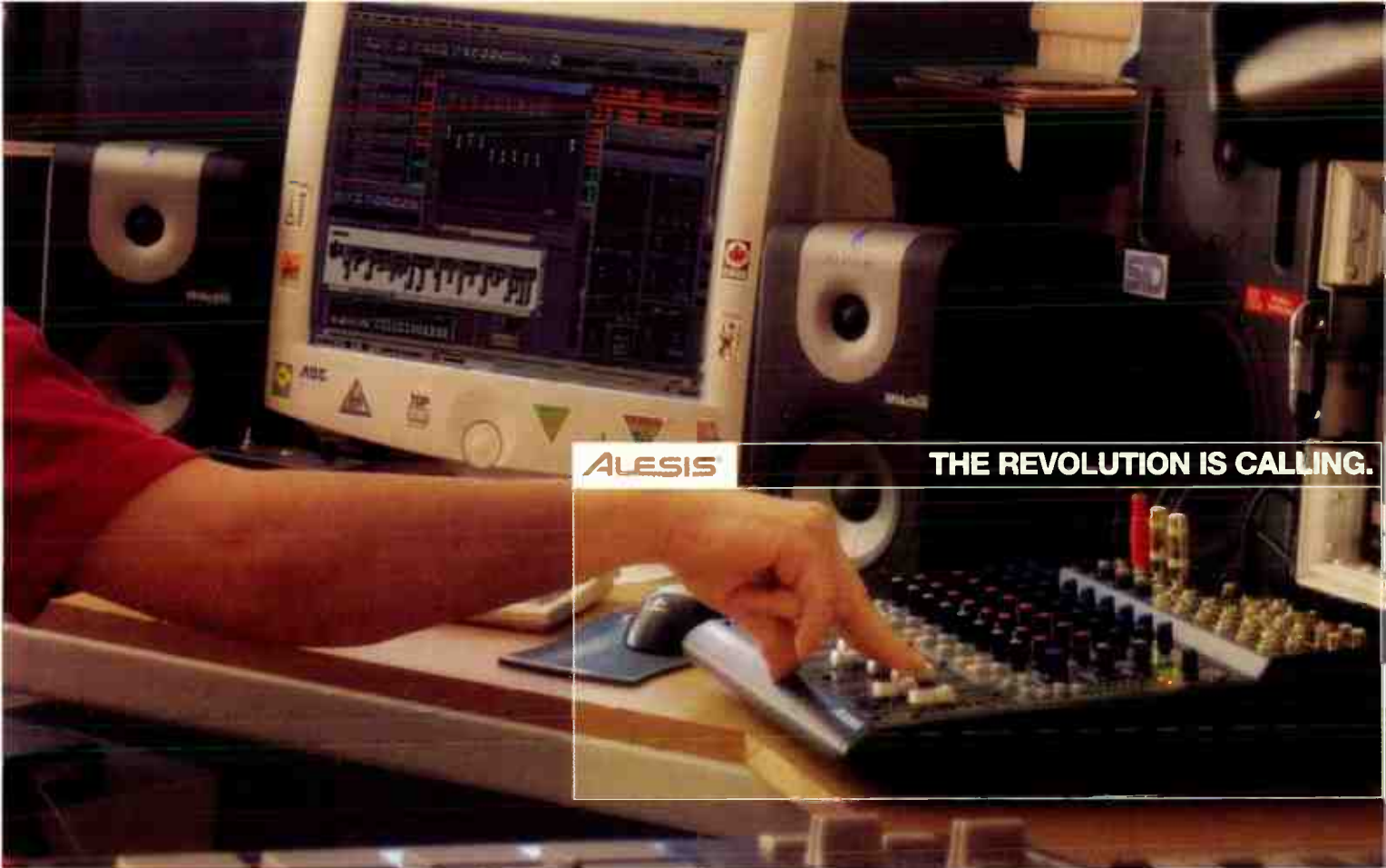
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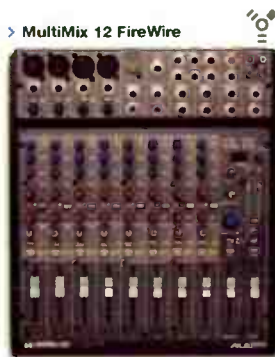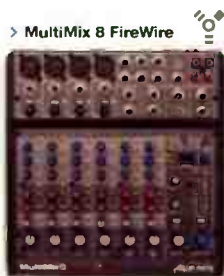
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ALESIS

Punch In

For reference sake, we've all been a very deeply bonded family since the mid-'80s and Chris and Gerhard even go back to the Commodore 64 days with their precursor to Notator called Score Track, which only briefly made an appearance here in the U.S. in around 1985. And then when Clemens joined the team in the late '80s and we began to move away from the old Atari to the Mac, well, the world of music software life changed forever and I doubt anyone on the planet would disagree with me about that fact.

I would argue that Notator revolutionized the world of music software in ways that had never been seen before. Certainly Charlie Steinberg set the stage and was also an early mentor of Gerhard's, but I just find it a total crime that neither Gerhard nor Chris were ever mentioned in this article after all, they have contributed to the world and to your magazine and all those mags that came before it.

Clearly, I have some deep-rooted passion about this subject and find no fault with any of those great minds and personalities you did include as they are all quite gifted, but I just can't believe you left out the folks who arguably changed the playing field for us all, not to mention many of the other companies/competitors of the day. In the early days, we were all so committed to coming up with the next big thing, and all of us were sparring left and right at every trade show to come up with the next cool feature set and the next greatest widget, man what a time it was, a real renaissance IMNSHO [In My Not So Humble Opinion — Editors], perhaps the golden years, not that we don't have some wicked new folks coming up strong today, it's just that those days were a time when everything was new and had not been done before and well, nuff said.

OK, enough waxing on the good old days, just wanted to make contact and mention these folks as they deserve all of the strokes you can give them as they were never ones to brag, just damn good folks. I just think the kind of history you shared should include them as they were at the beginning and they are still going strong today more than 23 years later.

Keep up the good work.

All the best,
Mikail Graham
THE OTHER S.M.C.

Editor's Note: Welllllll . . . you know when we set out to do this issue we knew there'd be omissions that'd have people screaming, but in the case of the folks you mentioned we're going to have to file that under Not For Lack Of Trying. We called, we wrote, outside of sitting in front of folks' houses . . . at 5 A.M. . . . in a ninja suit. After a certain point, you just gotta go to press. But magazines are on-going concerns and in upcoming issues we hope to have more in-depth pieces with Gerhard, Gilad Keren and everyone else who belonged, but didn't get back to us on time.

CHRIS LORD–ALGE MIXES UNDEROATH'S NEWEST OFFERING
THE MAGNIFICENT 7

by Jason Lally

1: Let's talk gear . . .
Chris Lord-Alge: Mixing on an SSL 4056 E console modified to G+ from a Sony 3348 as our 48 digital medium. Some people might wonder why I'm still using this; the reason is that it still sounds good to me. It's all edited on Pro Tools HD and transferred mostly flat to the 48 digital medium, and then we mix back to 1/2-inch 96K, 2-bit two-track. Basically that's what they are going to master from, with an Apogee front end on it. It's a pretty simple chain if you think about it, but my chain has a pair of Pultecks EQing the whole bus with three compressors. Since there is some cross fading and some edits between songs, it's staying completely digital on the two tracks. We did 11 songs in five and a half days.
2: I have heard six of the new tracks. The production is huge!
CLA: It's big, brash, in-your-face chunk, but the playing is so tight you can get away with it. With the way their drummer plays, it was obvious to me that I could push the guitar and bass as much as I wanted. Then I just had to figure out a way to shoehorn the vocals in there.
3: What about mastering?
CLA: I don't force feed him the information, the mastering guy needs to be able to have a part in the process.
4: What about secret weapons?
CLA: I have some custom, hand-made, tube inward connection limiters, which I use; they're the meat and potatoes along with the old LA 3s (not the new ones!). It's all just salt to taste after that. I think the bus being all tube really helps with the impact. Heavy midrange rock stuff doesn't really translate that well if it's all-straight digital — it just becomes sheets of pain.
5: So how do we get a more analog sound when we are all digital?
CLA: Nothing beats an old device to warm things up. A 3348 is old technology, but it's a lot warmer than HD Pro Tools. If I had my choice and they had 48 tracks on one tape of two inch, I'd be mixing on that. If you really want to get nuts, you cut your rhythm section on 24-track analog and dump it into Pro Tools; it will still keep its analog sound that way.
6: What kind of bands do you like to mix?
CLA: The bands that say, "it's about where I sit in the record," not just, you know, "make me louder." At the end of day, it's about who's driving the bus, good engineers on any platform will make it sound good.
7: What you record is what you have to deal with though, right?
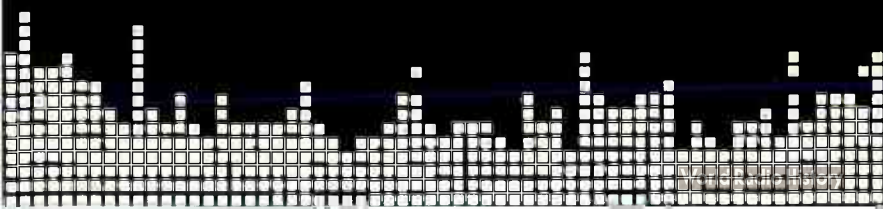**CLA:** Yeah and you know what they say, if shit goes in then shit comes out!

LOOK SEE
PRODUCING HIT RECORDS: SECRETS FROM THE STUDIO

Rick Rubin, Garth Richardson, Michael Barbiero, Walter Afanasieff, Bob Rock — these are names synonymous with the term "hit record." These are the people behind some of the biggest selling albums to ever grace the *Billboard* charts, and in *Producing Hit Records* David John Farinella brings you, the reader, face to print with some 40-odd of them for a candid look into the secrets of

their success(es). From tip to trick to tactic, all are covered herein along with many a yarn spun by producers and musicians alike, letting you look into the mechanics of the process, while also making this book not only a highly informative, well-rounded read, but also incredibly entertaining. Spanning both ages and genres, Solomon Burke to System of a Down, Farinella's voyeuristic journey behind the glass is a "must-read" for aspiring producers and seasoned vets alike.

LISTEN HEAR
BAYSIDE
Acoustic (Victory Records)
Produced/Mixed by: Chris Steinmetz/Greyson E. Taylor, Shep Goodman/Kenny Gioia

We'll level with you: We're absolutely not fans of the whole emo-metal/punk stuff that is all the current MTV2 rage. In fact, it repulses us. That being said, this genre translates much better into a stripped-down, acoustic realm

than it does within the traditional rock band parameters. This album isn't bad, though I wouldn't be quick to call it good either. One high point of this, however, is the production — which is both appropriate and endearing. As a reviewer, I won't feign objectivity, but I can recommend this to those of you that dig this style of music — and it's not a bad example of how an acoustic album should sound. Comes with a bonus DVD too, which is fairly snazzy.

musik**messe**

MIPA AWARDS WINNERS 2006

We were at Messe. You were not. Or maybe you were at Messe and you didn't buy us drinks — possibly because we beat you at arm wrestling or because you just didn't feel like loving us as we deserve to be loved. Or maybe you didn't buy us drinks because you had spent all of your money buying yourself drinks, in which case you may need a bit of a re-cap as to who was nominated, and who won, at this illustrious awards spectacle. The illustrious awards spectacle that you neglected to buy us drinks at.

Mixing Desk (Project Studio)
Winner: Mackie Onyx
Runners Up: TL Audio M4, Yamaha 01V96V2

Mixing Desk (High End)
Winner: Digidesign ICON
Runners Up: AMS Neve 88D, SSL AWS900

Studio Microphone
Winner: Røde NT-2A
Runners Up: DPA 4006 TL, Schoeps CMIT 5U

Studio Monitor (Nearfield)
Winner: Genelec 8050A
Runners Up: Adam P33A, JBL LSR 4300 Series

Recording Software
Winner: Digidesign Pro Tools 7
Runners Up: Logic 7.2, Steinberg Nuendo 3

Recording Hardware
Winner: M-Audio Project Mix I/O
Runners Up: RME Fireface 800, Universal Audio LA3A re-issue

Recording Effects (Hardware/Software)
Winner: NI Guitar Rig 2
Runners Up: AudioEase AltiVerb 5, TC Electronic Voice Pro

Sampler
Winner: TASCAM Gigastudio
Runners Up: NI Kontakt, Steinberg HALion 3

Sound Libraries
Winner: Vienna Symphonic Library
Runners Up: IK Multimedia Miroslav Philharmonik, Synthology Ivory

DJ-Tools (Hardware)
Winner: Korg KAOSS Pad Entrancer
Runners Up: Akai MPC-2500, UREI/Soundcraft 1620LE

DJ-Software
Winner: Ableton Live 5
Runners Up: NI Traktor 3, Stanton Final Scratch 2

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Tool Box

01 R-122 ($1,695)

The world's first phantom powered, active ribbon microphone comes to you via the fine folks at Royer. Ideal for drum miking and capturing vocals alike, the R-122 exhibits a flat frequency response and a well-balanced, panoramic sound field with the ability to withstand 135dB SPL — which means it's damn near the ideal mic for recording that Top Gun cover band of yours.

royerlabs.com

02 HOG GUITAR SYNTHESIZER ($599)

From the masters of all things effects related (and much more) comes the newest edition to their family of psychedelia-inducing effects units. The HOG offers polyphonic, harmonic regeneration of chords with no glitches or special pickups needed. Ten faders control the mix of 10 harmonic intervals from two octaves down to four up — with two dual envelope attack/release generators operating on two independent harmonic regions. Plug in an external expression pedal and watch as the octave and step bends, gliss, chord freeze, and filter all become controllable. Nifty.

ehx.com

03 AIRFOIL ($69)

Two 70mm, 1500 rpm fans that are silent like ninjas provide much-needed laptop cooling while the sleek, ergonomic design elevates and angles your up-to-17" widescreen, giving your wrists a much needed break and securing your laptop at a similar angle to your mixing board. Rain is poised to save more lives than an ER with this USB-powered heat assassin. Oh, and it looks sexy too.

rainrecording.com

04 REFLEXAUTO3 ($1,890)

Looking to step up your reproduction game? No, we're not talking about learning some new pick-up lines; we're talking about churning out CDs/DVDs by the bulk on your own. The ReflexAuto3 duplicates 18 DVD-Rs or 26 CD-Rs per hour. With a capacity of 100 discs and a robotic arm to do all your heavy lifting for you, you finally have an excuse to sit there and do nothing more often than you already do.

discmakers.com

05 KONNEKT 24D ($625)

A 14-in/14-out audio interface chock full of some of the worlds most renowned effects, all in a state-of-the-art design that allows front panel control of internal mixer parameters that is designed for the recording musician who is on a quest for high quality sound from input through built-in, realtime DSP effects in recording applications? Go ahead and pinch yourself if you don't believe you are awake.

tcelectronic.com

06 LIQUIDMIX ($699)

Focusrite comes correct, once again, with a liquid multi-channel FireWire mix processor that allows you to host 32 EQs and 32 compressors simultaneously in your mix — all of which are emulated from your favorite high-quality vintage and modern day classics. And the sprinkles on your parfait? You can build your own 7-band super-EQ in every one of the 32 channels. Now look us in the eyes and tell us you're interested. And try not to pay attention to the tire iron.

**focusrite.com**

07 5043 PORTICO ($1,895)

Rupert Neve Designs: You gotta love 'em. Especially now that they've added a Limiter-Compressor duo to their Portico line. Two channels of unobtrusive, musical-sounding dynamics, as well as brickwall limiting, all in a half-rack 1RU space? With fully controllable dual mono or stereo operation plus innovative feedforward/feedback detection switching? You bet your ass.

rupertneve.com

08 AT2041SP ($249)

Hotter than Georgia asphalt, Audio Technica drops an affordable yet high-quality studio pack combining an AT2021 small diaphragm cardioid condenser with an AT2020 side-address condenser, to cover numerous bases and fulfill many a need. And at this price, you can actually still support your growing scratch-off addiction.

audio-technica.com
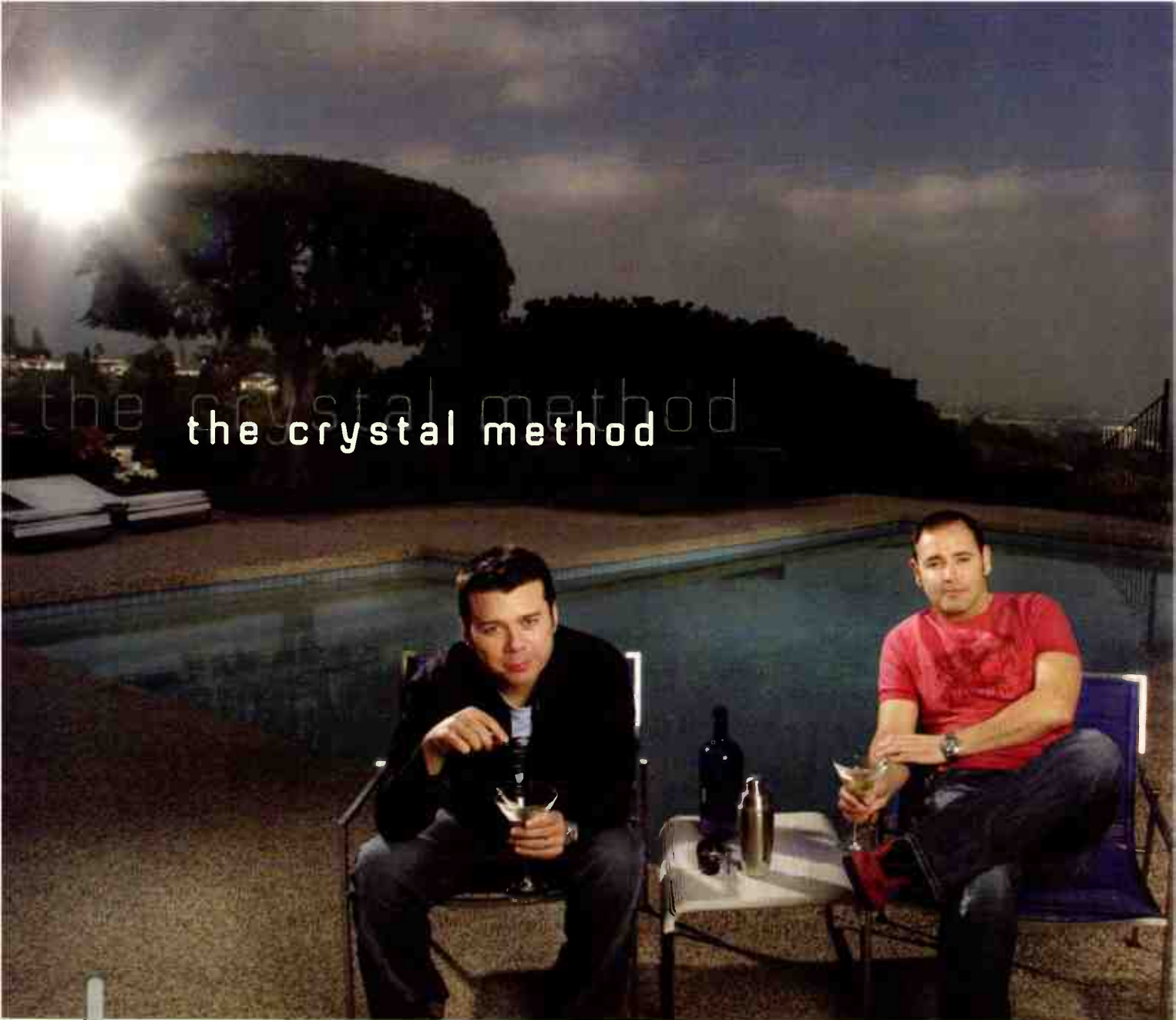
the crystal method

by Lily Moayeri

he Crystal Method is in the process of moving. For the past decade, Ken Jordan and Scott Kirkland have worked out of a small house in Glendale, California — living in the house proper and recording in its converted garage. The authentic subterranean structure that was installed in the front yard as a response to the Cuban missile crisis has served as the source of much amusement, both in print and in person, but The Bomb Shelter itself (the garage studio from which the duo have produced track after track of cutting-edge electronica) has slowly grown throughout the entire property, and the guys have thus come to the point where it is necessary to relocate their headquarters, even if the timing is a bit inopportune.

But then again, it's not as if The Crystal Method ever slows down enough to make time to comfortably uproot a studio. Whether it's creating yet another album of original material (now numbering at three: *Vegas*, *Tweekend*, *Legion of Boom*), putting together DJ mixed CDs (the *Community Service* collections), scoring soundtracks *(Tomb Raider 2*, *Blade 2*, and *Spawn)*, creating sounds for fashion or television shows (*Third*

Watch, *The Dr. Drew Show*, *Hawaii*, and most recently, *Bones*), composing music for video games (*Splinter Cell*, *Need For Speed*, *Matrix: Path of Neo*), or collecting music for their radio show, there is obviously no such thing as a good time for the group to transfer studio locales.

Their newest venture, the scoring of the entire soundtrack to the movie *London*, was undertaken with The Bomb Shelter in shambles because of their impending move. To add further stress, they were limited in the amount of time they had to work on the score — six weeks — the shortest amount of time they've ever allotted to working on a full-length. And aside from a couple of ideas that were developed prior to the film, the remainder of the music had to be cooked up from scratch.

But despite these limitations, *London* boasts some of the Crystal Method's best work to date. Amply mimicked is the film's urgent, energetic, mayhem-laden, and drug-fueled plotline; all created on a rather bare bones setup because of the transition of their headquarters: an Apple Power Mac G5 Dual 2 GHz running a number of virtual and plug-in instruments, among which

was the Korg Legacy collection, which incorporates the virtual MS-20. Also used was the GForce Virtual Instruments series: The Minimonsta· Melohman (a Minimoog emulator), impOSCar (an Oscar emulator, "We have the real Oscar, which is very old and finicky. The plug-in one works very well."), and the Oddity (an ARP Odyssey emulator). Additionally, the Alesis A6 Andromeda keyboard figured prominently as one of the only pieces of outboard gear, with everything then sequenced through Digital Performer.

In considering the Crystal Method's penchant for having an actual instrument to bang on, particularly during their live shows, their acceptance of the virtual realm seems an endorsement of sorts. "They're all sounding better," Kirkland points out. "That's helped us to feel better about using them. We're more used to sitting in front of the synthesizer and tweaking everything on board rather than going to click on a mouse and finding a spot on the screen. Also, there's a certain sonic quality that I've always enjoyed about some of the synths we have. But again, like I said, they're getting a lot better. There's a lot more warmth. We'll continue to experiment and use more virtual synths, but we'll always use outboard synths and gear that we've been collecting over the years. For a quick fix, [the virtual instruments] are always there, and more times than not, they sound really good."

But what of those trademark basslines the Crystal Method are known and revered for? Well, here are a number of sources for the ever-identifiable bass thumps that permeate the *London* soundtrack. "I wish we were that organized," Kirkland says in response to the question of the existence of a bank of bass sounds to regularly draw from. "A lot of them are sounds that we've liked. Some of them are random patches that we go in and tweak to our liking. Some of them we recreated ourselves.

It's a combination. For this particular project, we used the impOSCar, the Korg MS 20, and some outboard synths like the Andromeda and the SE1 and Nord. We create within Reason, with the bass synth module in there, changing the bass sound within the synth itself before recording it. For compression, we use the Waves plug-in bundle: Renaissance Bass, C4 Multiband Parametric Compressor, L1 and L2 limiters and L3 Peak Limiting Mixer."

He continues, "The beats are from our vast library. Some are from traditional sources [such as] sample CDs. Most are from picking up loops over the last 15 years of working on music. You have these loops sitting around and you don't really know where they came from. A lot of beats are created within Reason, live, or just triggered from, or put together within Digital Performer."

One final element that is missing, but not missed, on *London* is a proliferation of guest vocalists. With every album, the duo's collaborations have become more noteworthy, to the point of sometimes overriding the instrumental aspects of the song. While the scarcity of vocals on the tracks for *London* allows the music to show itself more fully, the vocals that are present, such as those on the track "Glass Breaker," are unobtrusive and complementary. "We used a Neumann TLM 103 microphone going through an Avalon 737 mic pre and compressor," says Jordan of Charlotte Martin's vocals, featured on the aforementioned track." There's one version that's on the album and one that's in the movie. One has a really degenerated sort of vocal thing. The version on the album; you can hear her vocals a lot better. There's another track in the film that we added a vocal to on the album, 'Smoked,' with Troy Bonnes, who also did the song 'Crime.' We wanted to keep it pretty minimal. Everything we did for that soundtrack was all out of necessity for the film, what we thought would work best for the film." EQ

A
HARD-FOUGHT
MEDITATION:
THE STUDIO

The shape-shifting paradigm of THE STUDIO: 2006 begs all kinds of questions right up through all of your business concerns and across the creative and creatively envisioned horizons. But how things happen (and why) in that place in space where toil takes its toll in perfectly re-produced art is *the* question.

The answer?

You're holding it.

IN THE BEGINNING...

...THERE WAS PRE-PRODUCTION

A primer on pre-production a little too 101 for you? You'd be surprised what you don't know, have forgotten, got wrong the first time. Well, JEFF GLIXMAN is here to help.

I've been producing music for more than 30 years, and for me, pre-production is the key to a successful recording. Pre-production is where it all starts, and it's a time of great opportunity. During this process, you can determine the techniques and approaches you're going to use and you can get a good grasp on how a production will proceed.

First of all, something you're going to think is a lie: pre-production is a lot of fun. This is the time to get to know your artist and their music. After all, the goal is to capture a personality, not just a performance. Some of the most fruitful time is spent hanging out, going to dinner, sitting around jamming, and *listening to what your artist(s) have to say*. I'm constantly striving to assess those qualities in my artists that are unique and distinctive and to expand and develop these qualities. I will then do my best to apply these characteristics to the music as we move ahead.

I don't especially like to hear songs that are recorded demos, because they're restricted (or enhanced) by the engineering and production skills of whoever worked on the demo at that time. I want to be able to go back to where the song started. This means starting with the songwriter and a guitarist or pianist playing and singing, and then moving into how the group is performing the song. At this point, we work on re-writing, (if necessary) the arrangements, the orchestration, and figure out the transitions that glue all the parts together. This is where I like to sort out the drum beats and grooves and determine the foundation instrumentation. While we're working on a song — developing, arranging, re-arranging, and trying to predict what will wear well over time — I am formulating the *sonic look* for the production. Whether it's intimate, immense, dark, bright, or uplifting, just like a movie we will have a *look* for each song, and everything from that point works toward achieving the sound associated with that look.

From an engineering standpoint, again, use this time to get to know your producer and the artists involved with the project. Taking this action is invaluable to the end result in both performances achieved and the overall smoothness and efficiency of the session. Pre-production involves tweaking the instruments and amplifiers to make sure they are in top-notch shape and you can achieve the sounds you are looking for, and addressing the drum sets to prevent squeaks and rattles. Knowing what gear you're going to use and providing a sophisticated mic and equipment setup list to your studio in advance will greatly enhance the launch of your project.

One of the great misconceptions about pre-production is that it stifles creativity. The main thing artists will say when we first start talking about pre-production is that they prefer to be spontaneous. I appreciate that, and the last thing I want to do is restrict spontaneity. However, it has been my experience that a successful pre-production process promotes greater creativity and spontaneity. It also saves time, money, and headaches. As an example, Zak Rizvi and I were recently working with an up-and-coming band from Pennsylvania, Bridges and a Bottle. We had a brand new song they had just written, and the drummer had developed various beats for different sections of the song. However, it still needed a little massaging. So, we set up in a semi-circle in the studio's large live room and worked our way through the song, changing patterns, trying many options before Zak, Bridges, and I were satisfied. Now, I didn't want him to work out the drum fills, just the basic foundation of the song — where the parts are and what comes next. I wanted everyone to have the song embedded in their muscles so that they're not thinking and they can be creative.

The analogy I like to use is snowboarding. There's a big difference between getting down the hill without falling and really

> "I had decided on a specific microphone/preamp/compressor chain — in this case a Telefunken tube 47 into an Aurora GTQ2 and then through an LA2 compressor. There was a lot of spill from the guitar that had a certain sound through the vocal mic, so the selection of the guitar mic was determined by how it complemented the spill."

snowboarding. If you want to cut loose on the mountain and really create, you've got to learn the way the course is laid out. Once you've become familiar with the ins and outs of the mountain, you can let your body take over, start having fun, and be more creative in how you get down the hill. The same is true for your snowboard (instruments). There's just no substitute for preparation. That's the advantage of pre-production for the musician. Once your body is in tune with the song, you can stretch out and let freeform guide you.

Here is an example of how pre-production can determine the end result of a recording, including mic selection. While working on "Polly," an acoustic song by Bridges and a Bottle, we initially set it up with a click reference and the guitarist playing, with plans to have the lead singer lay the vocals later. I was unhappy with the feel; it was losing something in the translation. We were not approaching the results achieved with the singer/songwriter performance we had from pre-production. I decided that we would record this track with Adam — the lead singer and guitarist — playing the acoustic guitar and singing simultaneously. No overdubs. No chance to go back on the vocal. No chance for AutoTune. We did two takes and Adam nailed it on the second. Through pre-production, I knew that I wanted to capture a certain intimacy in Adam's vocals; I had decided on a specific microphone/preamp/compressor chain — in this case a Telefunken tube 47 into an Aurora GTQ2 and then through an LA2 compressor. There was a lot of spill from the guitar that had a certain sound through the vocal mic, so the selection of the guitar mic was determined by how it

complemented the spill. Had we not addressed this song in its most raw form during pre-production, we would not have had that performance for reference.

Of course, there have been times in my career where I've been forced to put songs together in the studio, under the gun, with no time to conduct pre-production meetings. In these circumstances, I find that the lack of preparation most often shows up in the drum track. Returning to my snowboarding analogy, there's a huge difference in the snowboarder who knows the downhill course and the one who's still just trying to get down the hill without falling, and this applies to drummers. You can walk right in cold and start tracking, but I know that in three to four days, after living with grooves, I'm going to go back in and start tracking the songs again, because it just doesn't develop quite the same. Either that, or at much greater expense, we do our pre-production work in the studio. Often, the arranging process continues through the recording, so the more that you get done in advance, the finer you can tune the track.

A successful recording session is dependent on a number of factors. However, for me, pre-production serves as the foundation. All kinds of things need to be sorted out before recording, and pre-production is the time to do it. In the end, you'll have saved time and money, but most importantly, you'll be more comfortable with your finished product.

Jeff Glixman is a Grammy-nominated producer and The Dude *at StarCity Recording Company in Bethlehem, PA.*

PIMP MY ROOM
HOW TO CRAM A MAJOR STUDIO INTO YOUR HOUSE

by J.J. Blair

Somewhere between the $2,000 per day room and having a DAW in your garage, is the professional project studio. Representing rooms that people have built into their homes, while going for the quality of top commercial rooms, we have MY deal: Fox Force Five Recorders. Having had the room up and running for over 10-and-a-half years, we've been involved in *Billboard* Number One hits for P Diddy and Rod Stewart, as well as Grammy-winning CDs for Rod Stewart and June Carter Cash. Since most every musician or engineer dreams of having a studio in their home, let's take a look at what blood, sweat, and tearing misery went into making Fox Force Five.

But first, you might be asking, "What's with the name?" Well, *Pulp Fiction* was released the year I was building the studio. I heard the name in the film and thought it would be a good band name. I didn't know any bands that needed a name, but my studio needed one. So there you have it.

Back to the story; in 1994, I was looking for a home in Los Angeles where I could build a studio. I found a beautiful 1926 Tudor style home in the Beachwood Canyon area of the Hollywood Hills that had a separate living quarters attached to it. I thought that it was ideal for a recording studio.

After demolishing the existing rooms down to the basic framing, Brett Thoeny from Boto Design was brought in as the architect. I was aware that Brett had designed Bob Clearmountain's home studio, Mix This!, so he seemed like the perfect candidate for the

job. Whether in your home or in a commercial facility, I can't begin to stress how important room design is. Beyond the fact that I can be tracking a band at three o'clock in the morning without disturbing my neighbors, having proper room design and construction makes the tracking room free of unwanted standing wave resonances and comb filtering. Also, there's no guessing in mixing. Every single engineer who has ever mixed here has commented that what they heard on the monitors here was exactly what they got. I'll point out that these are things that cannot always be achieved with simple acoustic treatments. The structural shape of a room can be equally as important as bass traps and diffusion methods.

So we determined that the basic setup would be a live front/dead rear control room, a deadened vocal booth and a drum room without parallel surfaces, and bass trapping in the bottom half of two walls. Moreover, I made three amplifier iso booths with mic and speaker tie lines, so that you could patch a head from a different room. In the living room above, I installed a Yamaha C7, as well

mic and headphone tie lines.

Framing started and then Kaplan Electric was brought in to install the power. Transformer isolated, balanced power has become essential in all major studios now, but at the time, it had been done in only one room in L.A., which gave Fox Force Five the distinction of being the second room in L.A. with this configuration. I recommend anybody serious about

> One of my neighbors was the drummer in a very big rock band. He spent a great deal of money soundproofing part of his house, only to never be able to record anything in there because the electricity was so dirty. RF and ground hum made the room useless for anything other than practice.

2" 16-track doesn't get much use anymore, and the 3700 is gone. I've gone through various Pro Tools rigs, but currently, we are running Pro Tools HD on a Mac dual 1.42GHz G4, with Apogee AD16X and DA16X converters.

For a console, some of the smaller boutique console com-

building a professional studio to use this technology. It'll save you a thousand headaches. One of my neighbors was the drummer in a very big rock band. He spent a great deal of money soundproofing part of his house, only to never be able to record anything in there because the electricity was so dirty. RF and ground hum made the room useless for anything other than practice.

The studio wiring was done by Audrey Wiechman of Electricia Studio Services. As far as I'm concerned, having a professional do your wiring and patchbay is another essential expense, if you want even fewer headaches. Not only can somebody do the soldering faster than you, one wrong termination and you might spend a whole week trying to chase down the source of a buzz.

When it came to equipping the room, I was fortunate to have help from my friend Alan Hirshberg, a now-retired, but great, engineer. The initial intention was to have a room that would primarily be a place to come and do your overdubs, after doing your basic tracks in a larger room. I'd watched so many friends burn through so much money in overdubs, renting instruments and using a small booth while paying thousands of dollars a day for the rest of the studio they weren't using. On the other hand, I wanted a room to use for myself, and one where we *could* do everything, and make

panies like Oram hadn't appeared yet, and a Mackie wasn't going to meet my needs. I wanted a 24-bus desk and Malcolm Toft had just introduced his MTA 980. At the time, nobody could touch it for the price. I had always really liked the sound of the Trident Series 80, and this was basically a more powerful, more flexible version. We did a couple of modifications, including installing a class A discrete stereo bus section by Steve Firlotte of Inward Connections and Uptown Moving Faders for automation.

For monitoring, I chose Genelec 1031s, and a pair of NS-10Ms. I had my father's old JBL S7Rs, which I used as soffit speakers. Tuned and crossed over on White 4400 EQs, we powered the low end of the JBLs with a Yamaha 2700 and the mid-range drivers and super tweeter are powered by a Manley 35 Watt mono block tube amp. We chose Manley's Langevin brand eight-channel, self-mixing headphone system so that everybody could have their own headphone mix.

The instrument, microphone, and outboard gear collection seem to always be growing. The emphasis for all gear is heavily on *quality* vintage. There's a collection of 23 vintage guitars and basses, as well as a large cache of vintage amps. There's a stockpile of vintage keyboards, including about 10 analog synths, a Mellotron 400 (it works), a Hammond, a clavinet, Wurlitzer,

a full record from basics to mixing. Little did I know that record budgets were going to almost disappear, and that we would be required to do entire albums here more frequently than I had originally anticipated.

At the time we were building the room, Pro Tools didn't exist yet, but ADATs were all the rage and were starting to turn up in home studios. I didn't care for their sound, though. I already owned a 3M-56, 2" 16-track, but this was not going cut it as the main machine. I purchased a Studer 827, 2" 24-track, and the original intention was to do basics to the 2" 16, and overdubs on the Studer, with a Micro Lynx for synchronization. For mix down, I purchased an Ampex ATR 102 1/2", and even got what at the time was the cool set up: an Apogee AD500 for the front end of the Panasonic 3700 DAT machine.

As DAWs came along, that setup has seen some changes. The

Rhodes, and even some vibes and glockenspiels. There are piles of vintage and new mics, as well as outboard pres, EQs, compressors, and processing. Basically, I went for two things: gear that I really liked, and gear that outside engineers are comfortable and familiar with. I didn't want to have to tell a perspective client, "I don't have one of those, but these are just as good."

These days, the studio is primarily used for my own projects, but I rent the room to outside producers and engineers. We're fortunate to have a great second engineer, Max Coane, who previously had worked for other big producers like Michael Beinhorn, Ross Hogarth, and Jim Wirt. The number one philosophy here is to provide a comfortable environment with great gear that helps musicians be as creative as possible. From all reports, we've been able to achieve that successfully. And avoiding the pitfalls and pratfalls, so can you.

World Radio History

HEAVY ELECTRIC
PROTECTING YOUR POWER

by Garth Powell

The electronic circuits in studio equipment continue to become more and more sophisticated. Unfortunately, the more sophisticated the electronics, the more susceptible they become to damage from AC power problems. We're here to help.

Power is contaminated and AC noise causes distortion, buzzing, and video disturbances, degrading system performance.

Advanced filtering dramatically reduces AC line noise, ensuring optimal audio/video quality.

The fact is: We're all operating on old and overtaxed power grids. This more often than not means that we have noise and irregularities on the lines — which in turn means equipment with unreliable performance, or worse, that is susceptible to component failure and complete breakdown.

The most common form of protection used to combat today's power issues, is the cheap, throw-down, plastic surge protector. These devices are fairly ubiquitous these days, but in reality they're no more than a few extra outlets with unreliable protection components, designed to "sacrifice" themselves when exposed to over-voltage conditions, or transient voltage spikes. Though they can save the equipment downstream, the units themselves must then either be serviced or replaced. But until that is done, your system remains either non-operational or unprotected. Additionally, they do nothing to filter the incoming power and can, in fact, add even more noise to the line.

Common misconception #36b: Transient voltage spikes are rare or present only during lightning storms. In fact, a local power utility sends countless spikes through the AC wiring each week, because of the necessary switching of one transformer or supply to another throughout the day to adjust for peak demands. Although not as severe as a direct lightning hit, over time there is a cumulative effect that takes its toll on sensitive electronic equipment. Translation: everything in your studio.

SOLVING THE SOLUTION
So, what then? Professional power protection equipment like a transient voltage surge suppression system? Well, SMP+ (Series Multi-Stage Protection Plus) technology, for instance, offers proven protection in critical studio applications with protection circuitry that can typically handle multiple 6,000-volt and 3,000-amp pulses without sustaining any damage.

But standard surge suppressors are really just power clamping devices that have to absorb all of the energy themselves — which is why they tend to snap like an overstretched spring when faced with an over-voltage incident. To counter that, SMP+ circuitry has the ability to siphon off much of the offending transient voltage spike, which eases the burden of the power clamping devices. The key to SMP+ is that the severity of the offending voltage spike is critically damped, so that the overall energy level is reduced to a fraction of what the clamping devices can handle. Like a well-tuned shock absorber, the SMP+ circuit protects *itself*, as well as the connected equipment.

EXTREME VOLTAGE SHUTDOWN
Statistically, though, even greater than the risk of damage from electrical surges is the damage from sustained connections to high voltage levels. This can occur because of an accidental connection to a 230-volt power supply, or a lost neutral line (this effectively doubles the level of incoming voltage). Though this situation would be lethal for most systems, a technology called Extreme Voltage Shutdown (EVS) can provide peace of mind. As the name would suggest, EVS solves this problem by monitoring incoming voltage, and when the voltage rises to approximately 15 percent above nominal, automatically powers down all equipment quickly and safely in order to prevent damage from occurring. An indicator LED on the front of the power conditioner then illuminates, alerting the user to the situation until the over-voltage condition is corrected.
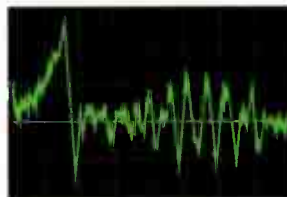
AC POWER FILTERING? *MAYBE* . . .
In the past, very basic AC filtering was sufficient, but today's AC noise is far greater in both amplitude and bandwidth than ever before. This is due, in part, to the increased usage of switching power supplies and the contamination they back-feed into our AC power mains. The effect of this noise is to distort the meaningful low-level signals that are critical to peak audio and video performance.

Because the AC noise that is coupled into your components' circuitry may be higher in strength than much of the low-level signals your equipment is attempting to reproduce, a masking effect will take place. The AC power filters of today must maintain a much higher efficiency and cover a much broader bandwidth than ever before. This is key, as high definition audio is defined by its ability to accurately reproduce complex, low-level signals.

Because of the way we hear and see, though, it's important to filter AC in a linear fashion. Otherwise the result will sound and look discordant. You cannot lower noise in one octave, thereby unveiling more signal information, only to increase the noise an octave away, and further dramatically reduce noise half an octave from there. Traditional AC filters unfortunately employ this non-linear approach because they were designed for unrealistic laboratory conditions and not for the complex loads of the real world. As a result, these technologies can harm audio performance more than help, because of the resonant peaking of their antiquated designs. Clearly, an advanced AC noise filter must have linearized filtering, and cover the widest frequency (bandwidth) possible. By doing so, you will be assured peak performance from your studio equipment.

Besides what has already been mentioned here, advanced power management should also consider such things as power factor correction, uninterruptible power supplies, and voltage regulation, but the main point to take away is that electronic circuits of today's studio equipment are of such a sensitivity and sophistication
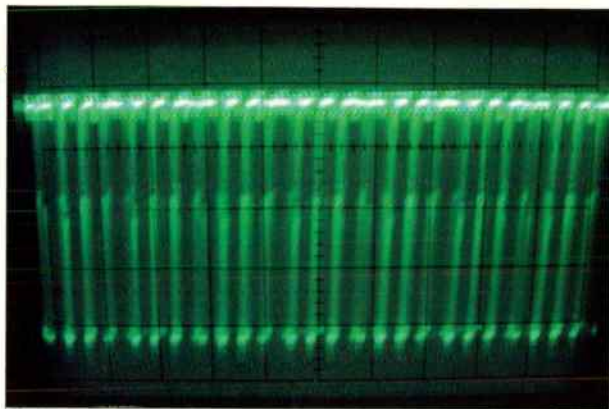
This scope image illustrates the actual amount of noise and contamination on a typical AC line.
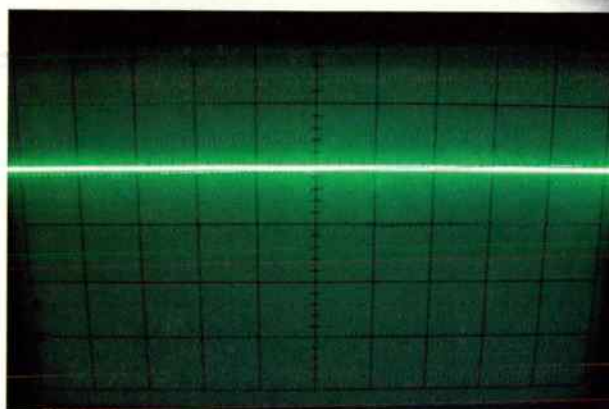
When the AC is filtered through a quality power conditioner, a smooth, linear flow of power results. Oooo . . . *magic*!

tion that they require more serious AC power conditioning. Anything less will limit the quality of your audio projects and leave unprotected equipment at risk.

TIPS ON SUPPLYING POWER TO YOUR STUDIO

A good power conditioner can absorb an unlimited number of 6,000-volt and 3,000-amp pulses — *without sustaining any damage*. A suppressor's "joule rating" is essentially a measurement of how long the unit will last before needing to be replaced, purchasing one with an *unlimited* joule rating means you can plug it in and forget about it.

A power conditioner that can survive being plugged into a 220-volt outlet when the equipment is rated for 120-volts is a power conditioner that could save you someday. *EVS* (Extreme Voltage Shutdown) functionality, will automatically block the power supply once the voltage has risen about 15 percent above nominal.

Buzzing audio and flickering video are the result of AC contamination that has steadily grown worse in the past decades. The only way to effectively deal with this problem is with a power conditioner that features a *linear filter* that suppresses noise evenly across a wide frequency range. Try it. You'll not be sorry you did.

Garth Powell is a Senior Product Engineer at Furman Sound USA.

GETTING THE MIX RIGHT... OR HOW I LEARNED TO STOP WORRY & LOVE DELAYS & REVERBS

by Cookie Marenco

You heard the sound of a vocalist with a long reverb and the rest of the band sounding like it was playing in a bathroom? Or the sound of a snare drum giving off a high, splashy reverb and the kit's lifeless? How about the guitar panned hard left with a short delay panned hard right? Okay, guilty as charged? Well, help is on the way.

I design environments where records live in people's minds for a lifetime; that is, I put records in a mood for the entire project. I call it *setting up the environment a recording lives in.* This style of mixing combines various reverbs, delays, and other effects to achieve a mix that sounds as if the musicians played in one room, live, and at the same time. It can make an acoustic instrument that sounds dead jump to life, enhance a concert performance that suffered from close miking, or mask a band recording made with multiple overdubs, at different studios, over many months, sound cohesive again.

WHERE TO START

As the engineer, I work closely with artists to determine who the intended audience might be, where the music might get airplay and what references are the artists listening to that they will compare their final mixes with. After the issues of panning and EQ have been addressed, it's time to start building the environment. I'm going to focus on the delicate mixture of delays and reverbs for this article, leaving compression for another time.

At your own facility, you probably have your arsenal of effects in place and are familiar with what they are capable of. The first tune you mix is going to dictate how the entire album will sound with the *environment* technique. Chances are the first tune will be remixed as you refine the environment, so choose the tune

that might require the most extensive use of effects and uses all the instruments you might encounter. Pulling out instruments is easier than finding more effects in a pinch. Limitations are good.

Or, if you choose, use the medium up-tempo piece you like the most because you're going to be hearing it *a lot* right now while creating and setting up all the effects.

As the engineer, this is where you have the most fun with upsetting your client. As their mouths drop in horror, you calmly listen and take time as they count the dollars flash by. Not to worry. Once you've setup your environment, you can re-patch and mix song after song with a few slight alterations and probably finish the entire album mix in less time.

From tune to tune, you will move incredibly fast. Granted, it helps if the same person recorded all the instruments and the tracks are cleaned up prior to the mix, the relative recorded levels are pretty similar, and the musicians are the same. With this in mind, it's best to mix similar kinds of song, like the upbeat songs with the same musicians one after the next, and the ballads with other ballads. It will also cost you less in mastering if songs are mixed in a similar manner.

I like to have, at minimum, two delays and two reverbs available at all times, even for rough mixes. Take the opportunity during rough mixes to test where you are going to place the instruments and how they interact. This will have a drastic effect on what kind of reverb or delay you might be using. Rough mixes are the time you test whether a wetter sound (use of more or longer reverb) or dryer sound has the desired effect to the listener. It's also a great time to make mistakes and say, "Hey, it was just a rough mix, don't worry. . . ." Many a rough mix has saved me from the horror of too much or little of *something.*

USE OF DELAYS & REVERBS TO MAXIMIZE THE SOUND

After you've assessed the situation, decide which instrument is the most important (usually the featured artist — I'll refer to the vocalist as an instrumentalist as well) and work on their sound first. If you start with the person who complains the most, you'll end up remixing for the featured artist, so just kick that person out of the room for awhile. Actually, kick them ALL out for a couple of hours. They'll learn to love you for it.

Have your two reverbs and two delays patched so that each effect can be accessed via an auxiliary send. You'll need four sends, minimum. I've made my life easy these days by assigning the reverbs and delays in groups (reverb long, reverb medium, delay long, delay medium). All the effects need to have their own returns on the board with access to additional EQ and the aux sends.

I start with a simple, great reverb and about 120ms of pre-delay. Since I have a preference for vintage gear and real outboard effects over plug-ins, I'll start with a Lexicon PCM 42 delay (I'll call it "delay medium") and a Lexicon PCM 60 reverb (set medium). You can get away with incredibly simple gear with EQ and a unit delaying the reverb.

The PCM 60 reverb has very few options but sounds great, (four room sizes, four length plate/room, treble/bass cut). With the PCM
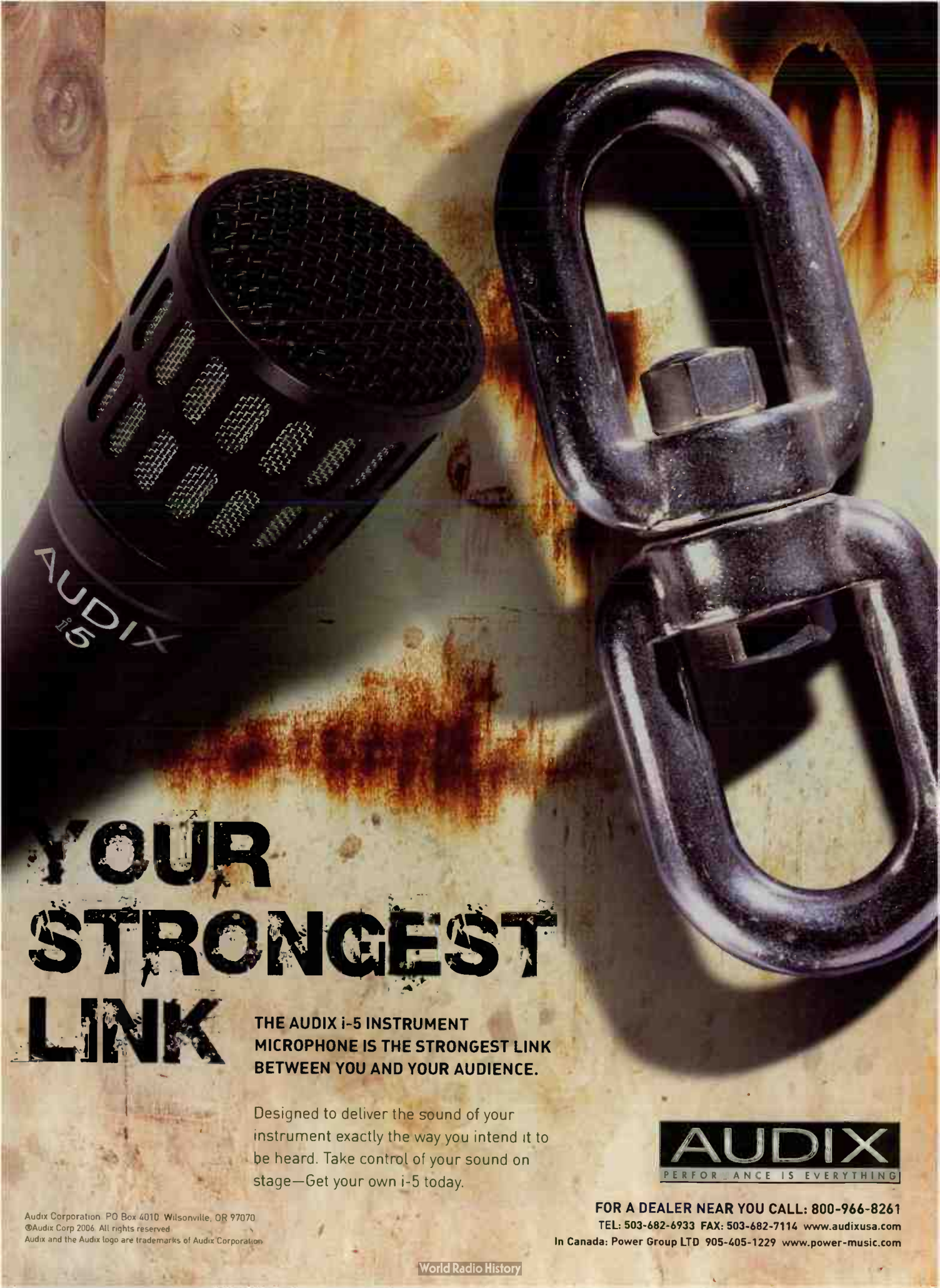
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42 in front of it acting as a predelay, the PCM 60 has incredible flexibility to adjust the length of the reverb. If the instrument has a lot of natural highs, like snaps of the guitar strings or sibilance on the vocals, you might want to cut the treble. Cutting the highs can allow for surprisingly long reverb trails that are pleasing.

Run your featured instrument through this effect, listen to how it decays and decide how you want to time the effects decay. Depending on the tempo of the song, adjust the room size, then fine tune with the delay.

Determine whether you want the decay to fall into the next beat, word or rhythm. The EQ of the delay will also have an effect on how long or apparent the reverb will sound. Most of the time, I remove the highs in the delay so that you don't hear it in the reverb. You can also adjust the amount of feedback, multitap or repeats the delay has to give for the desired mood.

DON'T TELL THE DRUMMER
Before you've gone too far, test this "medium" verb out with the snare drum channel. With a live kit, you're going to get some of the rest of the drum kit in the snare (please don't gate and over compress the drums . . . get a better drummer next time). It might be enough to give you the sound of great live stage. Back reduce the send and see what happened. You don't want to overdo the reverb.

Try this effect on the toms and maybe the overheads. Lastly check out the reverb on the kick drum and other parts of the kits. Rarely does the hi-hat need any 'verb because it bleeds everywhere. Don't tell the drummers, but I like to bring up the 120ms predelay from the PCM 42 to hear the delay dry with the whole kit ever so slightly coming through the mix. With the highs rolled off, it can sound like a wonderful outdoor amphitheatre.

Unless you want to ruin your mix, don't tell the musicians what you're doing. Just say, "I'm putting some *stuff* on it. Do you like the sound?" If you haven't altered the instruments greatly, it'll sound like their equipment, only in a more live situation.

BIGGER OR SMALLER
At this point, decide whether you're going to go "bigger" or "smaller" on the environment. Use a reverb with predelay built in. I use the Lexicon 244xl, because I prefer it for its 4- channel return and smooth decay of the reverb. I mult out the send so that the stereo inputs of the 224xl are input with the same signal, and get

the benefits of four returns. The multiple decays from the reverbs and delays start to simulate a more real room tone.

If the artist wants to hear more reverb, then I might increase the high frequencies of the reverb, which gives more splash to the sound and more confused, muddy quality. Personally, I'm not a fan of this reverb character *sooooo* popular in the '80s.

So, for a smaller environment, you might want to use as much as a 300ms or more predelay with most of the highs rolled off and the length on the low frequencies increased with a very low crossover point in the bass. A small amount of this can sound like you've recorded in a huge room not oversaturated with reverb. Remember, back it down so it's not noticeable.

For a larger environment, set it up a third 'verb or reduce the long predelay to 60ms or less. This will give you a more immediate sound of a reverb. Use all three 'verbs if you have them and set them up to decay one after the other. You'll hear the various instruments trigger them at different times depending on the amounts you send.

Set up another delay, or if you have a stereo delay with one send, set the right side of the delay to 250–400ms and the left to 350–600ms. I pan these delays hard left and right, often swapping sides depending on the spatial image.

The returns of this delay should have the highs rolled off. Get ready to trigger all your various reverbs. I realize there are many mix engineers who time their delays to the tempo of the song. I like to time the desired feel of the song either behind the beat to lay back a feel, or on top to give it urgency, or in the pocket for a groove.

Typically, this delay is used on syncs, guitars, lead and background vocals, orchestral instruments, and is especially effective on electric and acoustic basses, French horns, and other instruments that are difficult to get a room sound on because they are thick and low sounding. Again, avoid telling the bass player you're putting delay on the bass. You're going to use VERY little and just enough to get an expansive sound, not enough to actually hear it boing around and get muddy. And when in doubt, take it out.

PULLING IT ALL TOGETHER
Now that you've got your resources out, you need to start tightening up the sound. You're going to notice that not all reverbs and delays trigger the same way when sent from certain channels. In general, low instruments will respond to longer, lower delays and reverbs. Higher instruments will trigger just about anything, but will be heard by reverbs with more highs. A vocal might sound too dry when using a reverb that triggers in the lower frequencies. Increase the length of

high decay aspect of the reverb and the 'verb will become more apparent.

Reverb and delays will also change the respective sensation of how you hear an instrument in the mix, either louder or softer. You'll need to make adjustments to your dry signal levels, as well as testing each delay and reverb send for your desired effect.

You'll start to get the feel of the environment and how each instrument reacts and interacts. Pull out a reference CD and listen to see if you're in the ball park. Turn down the level of the speakers and listen to the smallest nearfield speakers in the room. Stop for 15 minutes and walk away.

When you return, see if you have reached your desired environment and continue adjustments. Take off each effect to see what happens until all effects are off. Then return to all effects on.

Determine whether you want the decay to fall into the next beat, word or rhythm. The EQ of the delay will also have an effect on how long or apparent the reverb will sound. Most of the time, I remove the highs in the delay so that you don't hear it in the reverb.

THE NEXT STEP . . . *IF* YOU HAVE THE TIME & EFFECTS BUDGET

The use of chorusing and harmonizers in an environment can create incredible dimension and sophistication from a lackluster and dead recording. Used cautiously, adding a slightly detuned harmonizer or light chorusing to a synth, snare drum, toms, or guitar can give you the sensation of depth and three dimensions.

Use your headphones and add 20ms delay panned to the opposite side of a guitar or synth. Boost the level of the short delay and feel how the image shifts in the headphones. You can alter the placement of the instrument and its depth with this effect. Shorten the delay time and repeat the exercise. Move the delay and/or instrument closer to the center and change the level. Now add a reverb and change the EQ to the short delay and feel where the

image shifts to. You can create the illusion of stereo miking if used carefully.

You can do this with as many instruments as you have short delays. Word of caution: This can get really tricky if you're not careful. Trouble lurks creating a lot of phasing and noise problems. Make sure you are maximizing your gain structure (pushing your gear as hard as you can while not distorting) so that you are overcoming any potential hums and problems inherent with this gear. This technique can get really confusing if you try to raise the level of an instrument that sat really well in a mix, only to boost the level to suddenly find your panning has switched.

Using this kind of technique on direct guitars, basses, and syncs can help simulate a more blended live recording. Synthetic drums

can be made to sound real with the right combination of delays, 'verbs, and chorusing or harmonizers. As well, in a live recording situation, the addition of a small or large environment can diminish problematic issues of playing too close to a mic, or over-dubbing a miscellaneous part.

READY TO MIX IT DOWN & START THE NEXT ONE

Assuming you've got your environment created, moving to the next song should be relatively easy. What took eight hours to create and setup might only take two on the next one. If the tempo is slower, you can try lengthening and increasing the delays. At times, a faster tempo might require more delays and 'verbs than you think because the instruments cover up the environment.

Keep your pans and EQs if the recording is the same. Keeping this basic environment doesn't mean you can't get a little creative with some wacky effects. You can still keep the mood. With the basics in place, you learn to free up or get access to the new effect you want and incorporate it into the mix.

I have an old Eventide Harmonizer 969 that is busted. I'm not sure I can ever recreate the sound it makes on any other 969, let alone a plug-in. I'll throw it into an environment just to give the recording project a special feel that no other record has. Another trick is to have the delays feed back on themselves by turning up the send on the channel it's returning on. Yikes! You can really

> **Use your headphones and add 20ms delay panned to the opposite side of a guitar or synth. Boost the level of the short delay and feel how the image shifts in the headphones.**

amuse the artist with this trick. Try it on a harmonizer set to thirds or fifths and have it feedback on itself . . . but USE CAUTION. You might blow up your speakers so get ready to SHUT IT OFF FAST!

Another favorite effect you can try is setting your harmonizer to trigger an octave higher. Set a pre-delay in front of the harmonizer that is a second or more in length. Then trigger the harmonizer to hit a LONG reverb. Play one note and see what happens. If you have a stereo delay triggering the harmonizer, and float the delays (don't monitor in the mix bus) you can make a whole album by hitting one note.

In any case, making an environment isn't as easy as it sounds. It requires detailed listening and concentration that leads to the difference between an amateur and professional mix. The world you create for this project will last a lifetime. Do it right.

END NOTE: WORKING OUTSIDE YOUR OWN STUDIO . . .

When you work in a variety of studios, it's best to call ahead and find out what kind of and how many delays, reverbs, and compressors are available. It's a little like trying to cook an elaborate meal for 12 at someone else's house. Make sure they have salt BEFORE you get there and that all the burners are working. Sometimes you find a new sound that you never would have encountered had you not gone outside your own arsenal.
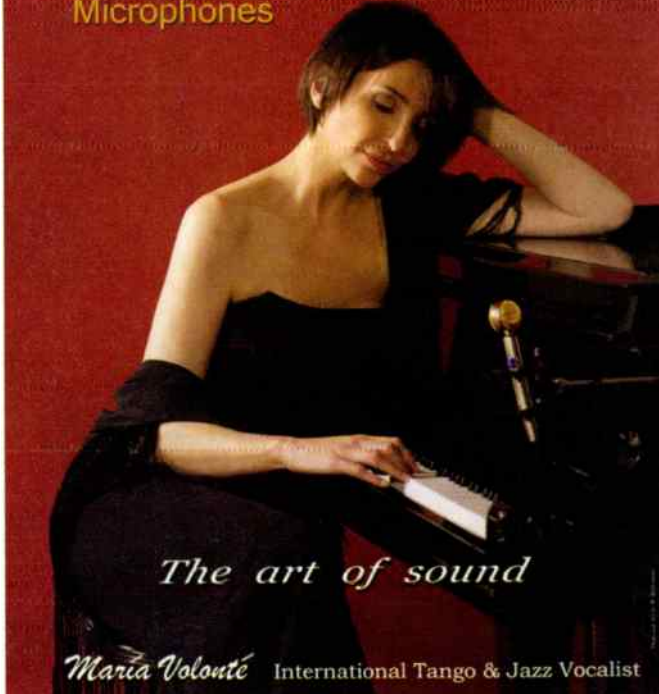
World Radio History

THE STUDIO DIARY

OF ALICIA KEYS

If there's a secret recipe to sonic success, a calculus composed of right place-right time realities, **ALICIA KEYS**, **KERRY "KRUCIAL" BROTHERS**, and engineer **ANN MINCIELI** are *deep* in the mix of making musical magic pay. Someone's in the kitchen with Alicia? Indeed.

by John Dylan Keith

Alicia Keys' Long Island studio, The Oven, flips the time-tested archetype of the live/work space, creating the work/live space, establishing a pro space with a lived-in feel. The name obviously evokes the appliance where most cooking comes together, but it also suggests that old party truism that everyone at a party inexplicably feels most comfortable hanging out in the kitchen. Keys and collaborator Kerry "Krucial" Brothers wanted that homey feel for their studio to get back the feel they had working in Alicia's apartment before *Songs in A Minor* catapulted the Krucial Keys team to the big league of professional, but maybe a bit sterile, Manhattan studios.

So if Krucial and Keys are co-proprietors and head chefs, if the house specialty is chart topping pop, R&B, and hip-hop, the secret ingredient is evidently vibe. Ms. Keys answered my request for technical tips with the glib reply: "We have a saying around here . . . keep the vibe turned *up*."

Ok. So which fader on the SSL AWS900 desk is "Vibe" mapped to? Is there a separate bus?

"You can't see it, but it's there," laughs Krucial, sitting at the console in his Herman Miller chair, the world's most comfortable way to mix, or evade technical questions.

I eventually pulled some more geek-love wisdom out of them, but from The Oven's inception, their saying certainly applies. From the design concept to the transparent approach of tracking engineer Ann Mincieli, who teamed with Krucial and Keys to put the studio together, the main principle driving Krucial Keys projects is to foster *relaxed*. To drive *creative*.

THE STORYCK CLUB

John Storyck, the award-winning architect for everything from Electric Lady Studios to the Jazz at Lincoln Center space, from home theaters to destination studios, was the natural choice for Keys, whose studio would have to fit in a preexisting structure, a three-story house in a commercial zone of a New York suburb. A seasoned vet who has faced every imaginable acoustical design problem; Storyk had to gut the house without rebuilding, while maintaining the feel of a house.

While the space considerations mandated a small control room, to fit Augsburger monitors in the control room, with adequate low-end absorption, they used two different sized broadband modexes, which, explained Ann Mincieli, "expands the bandwidth of the absorption even further."

Storyk insists that one of the most exciting developments in studio design stems from what, on its surface, is hardly sexy: the appearance of cheaper and thinner low frequency absorbing modexes, which at once afford more precise bandwidth targeting, while at the same time physically taking up less space. This is the key to working in smaller spaces, and it lets acoustics take more of a guiding than a determining principle in the aesthetic design.

The previous owner (also a studio owner), had dug down into the foundation to give more head room in the live room, but was limited to about a 500 square foot rectangle by load bearing headers. To keep the middle, and maximize area, Storyk designed a sort of walkway around the edge; the resulting tiered space turned out to have both visual and acoustical advantages — lines of sight from control room window, walkway, main floor are unobstructed and have an ideal focal unity, and the headers provided good locations for three big low frequency diffusers.

For a pianist and vocalist like Keys, Storyk kept the room as reverberant as possible with wood flooring, which you can throw a rug across for full band sessions, and a stone wall on one end. One problem with the properties of a wood floor is the high-end reflections, managed by Topakoustic high-end absorption on the far wall and flat, curved

STUDIO DIARY

wooden panels for flutter-free absorption on the back wall, leaving a half second reverb for the room.

Mincieli was more than satisfied: "Storyk's assistant shot some pink noise, and it was pretty much dead even. That guy's a physics genius, knows everything about time-aligning speakers and all that."

THE NUTS, BOLTS, & SPACE IN BETWEEN

Alicia's enthusiastic about how the set up affects both her composition and recording process: "We have this great sounding room, we want to get people in here and *jam*; records hardly ever get made like

5 EASY PIECES

ANN MINCIELI

1. When using Pro Tools, no matter what kind of music you're working on, always lock your grid so you know the tempo changes and the song arrangement. It makes editing and flying vocals that much easier. Also, count how many bars you have in a verse and chorus. Using bars to locate to a certain spot is much easier.

2. When using Pro Tools and you're working with a lot of vocals, you can color code your Aux Tracks, Verse Tracks, and Chorus Tracks all different colors, so when you need to access them quickly, seeing them visually helps a lot in locating a certain vocal line or part. It's all about SPEED.

3. When tracking a piano, look to see what range the player is playing in, so you can adjust your mics accordingly. Also, the closer the mic on the piano, the brighter the sound. And the more you hear the decay of the hammers.

4. Try tuning your drums to a chord or key in the song arrangement: It's a lot of fun. Experiment, because you can make the bottom head either a half step or even a 3rd step down from the top head.

5. It's all about capturing the natural element of the instrument itself; go listen to what's happening in the live room and try to capture it. You want a certain snare sound? Tune the snare, or make it dead, or change a mic to suite your needs. It's not all about EQing everything to tape or using PLUG-INS. There is so much more to engineering these days than just knowing Pro Tools. There are "Engineers" and then there are people who know a few quick keys with ProTools and call themselves an Engineer.

that anymore." And that's exactly what they did for her remake of "People Get Ready," for the soundtrack for James Gartner's film *Glory Road*. They handled the dual challenge of keeping the oft-covered song fresh while maintaining the old vibe of it by staging a full band session in the live room.

Mincieli had everyone miked and at the last moment put a Yamaha sub kick (essentially an NS-10 driver, to catch the sub-harmonic frequencies coming off a kick drum or bass amp) on the bass guitar — but everyone was so thrilled by how it picked up bleed from the guitar and piano, they ended up keeping the main guitar and piano signals muted in the mix.

Wedged between two headers, directly across from the control room is Alicia's vintage keyboard nest, a pile of electric pianos, synthesizers, and a clavinet, all patched into a sub mix station so she can sit there and monitor it, but Mincieli can also take the direct out into Pro Tools, Mincieli's platform of choice, which dovetails nicely with the SSL AWS900 mixing console, perfect for the small control room, but still up to the demands of full scale industry use.

"Did we want the J?" she asks, then answers, "Yes, but where do we put the power supply? Anyway, this is the future, there's no need to have an 80 input desk."

Most of Keys' projects at The Oven lie in said future, something she's very excited about. "It's great to finally have a place set up the way *we* want to work." Her first feeling of being at home with the new setup came as her crew brought tracks from her *MTV Unplugged* session to mix. "It was so great to just be in here with that, even though we didn't track it here, it was the first time we felt like, 'we're home now.'" Which isn't just figurative, as Keys performance for MTV came during her 2004 tour while Krucial, Mincieli, and company stayed behind to get everything in place.

To Mincieli, the *Unplugged* session is also significant, as it vindicated her faith in the compact mixing console. Keys' mixing engineer Manny Marroquin "came in with 96 tracks of audio and a beta video deck. We had to recreate what they did in the truck so he could come in and mix," which ultimately proved that the AWS900's 24 faders, combined with a sub group patch to the extra summing bus and four extra external stereo inputs, was capable of handling anything someone of Alicia's stature would require.

Another exciting moment, on an equally high profile project, required the opposite extreme in complexity. Steve Lillywhite and Bono came in last year to work with Alicia on a version of Peter Gabriel's "Don't Give Up" to benefit the Keep A Child Alive Project. "We were standing in here, right here! We were playing them the backing tracks and I don't know if I started singing, or he did, but something started happening and we tracked it right here on the spot, that's it, we're done. There was a crowd in here, everybody came in from the other room because they could tell there was something going on in here," says Alicia.

Mincieli added that "Bono's so used to performing with a handheld on stage, he can't really be in a booth. They just started up, so we handed him an SM58 and that was it." Partly inspired by the intimacy of being in the control room, but also the pragmatics: Lillywhite had a version of the song sketched out, and so did Alicia, and everybody liked both versions, so they were in the control room anyway, time-stretching and squashing them together. From that experience, Alicia keeps that option open for future projects.

But Alicia doesn't usually track with a 58, of course. They stock a large collection of mics at The Oven, and will vary the choices greatly depending on context, but the current starting point for Alicia's voice is the Telefunken M16, since Mincieli and mix engineer

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The half-second decay of the room lends itself nicely to the M/S trick of mixing — "two mics aimed at middle C, say a 414 face down and the 270 above at a 90 degree angle in figure-eight pattern, which collapses to mono perfectly," but also works as a kind of zoom lens, in which the stereo image blooms seemingly forward as you cross fade against the mono.

Manny Marroquin staged a "microphone shootout. . . . We tested Alicia on a bunch of different mics, C800, U47, the Elam 270, and so on. With the Telefunken, you get the highs, the warmth, but the mid doesn't sound too pinched. It sounds great on guitars and percussion, as well. "

They tried out several monitors, as well, but settled on the BM15As. According to Mincieli, "the Genelec 8050 sounded great, but a lot of what we do is live and hip-hop, and the Genelec just can't handle low end."

Alicia's studio pianos are a clear-lidded Yamaha C3 Neo Grand (one of only three ever made) with a bright, poppy sound and a Steinway A Series Baby Grand, which she prefers for a more classical, darker sound. For miking them, there are a lot of variables to consider, from the type of song to whether it's a part that will be mixed into the song, or will be resampled and used in another way.

The half-second decay of the room lends itself nicely to the M/S trick of mixing — "two mics aimed at middle C, say a 414 face down and the 270 above at a 90 degree angle in figure-eight pattern, which collapses to mono perfectly," but also works as a kind of zoom lens, in which the stereo image blooms seemingly forward as you cross fade against the mono.

And in a session like "People Get Ready," where the goal is a classic, full band sound, the miking will reflect that (ATM25s on toms, U47 on kick, and so on), but another favorite, especially for tracking drums that Krucial will loop, tweak, and collage in Pro Tools or his MPC, is to use one RCA ribbon mic above the whole kit, and just get the loop sound out of the room.

BUT WAIT. THERE'S MORE

The Oven stocks 32 virtual synths — some local favorites being Reaktor and the BFD drum set plug-in. "We use it all the time, it really feels like a live drummer, because it has so many layers of velocity sensitivity, each one triggering a different sample. . . . It's one of our favorite plug-ins." In addition to finishing the new construction, and delving deeper into the modern world via software synths and plug-ins, Krucial and Mincieli intend to build up the

POP QUIZ

Control Rooms: Getting Bigger or Smaller?

We wish we had the answer to this question. One thing seems certain though, regardless of size, we are definitely going to have MORE control rooms. So I will borrow a term that I first heard over 35 years ago from Buckminster Fuller (I was lucky enough to study with him in 1970) — "bare maximum." I want to suggest that we create a control room size that always is the "bare maximum." Control Rooms (critical listening and production environments) will always have to hold required equipment and be comfortable for the exact number of people a client or end use desires. This is now the mantra of control rooms. It is our assignment as designers and as acousticians to make these two fundamental requirements work in harmony and at the highest possible standards.

Oven Studios for Alicia presented this challenge. It's interesting to consider the final size of this control room — only 280 square feet, including build-outs for speaker housings and Pro Tools equipment closets. This is actually quite small compared to other control rooms (Allaire in Woodstock by way of comparison is over 600 square feet). Part of the reason for this size is, of course, existing conditions in The Oven's building structure. But I wonder if given a "clean white page," whether we would have made a control room much larger. This is all Alicia needed though: room for a very compact control surface (SSL AWS is amazingly small, considering it is both an analog full function console *and* digital control surface); Augsbergers (custom designed); custom equipment furniture designed to accommodate "hands on" aux equipment with computers and other "in room" devices being placed in the corners of the room.

The acoustic challenge of this small room (with low ceiling height as well) is the use of very thin low frequency control. This is accomplished with a number of different membrane absorbers (both pre fab, as well as site constructed). Thin plywood veneer on the side walls are targeted at the width dimension modes, while RPG "modex" membranes and a "site built" Helmholtz resonator are positioned at the rear of the room to accommodate the room depth modes. The result is an extremely controlled and evenly distributed low end modal response in a room that gives Alicia and Annie no more, and no less, than what they need. —*John Storyk Architect/Acoustician Walters-Storyk Design Group*

vintage arsenal as well, adding classic amps and keyboards to the array of drums, drum machines (909, 808, MPC 4000, Linn, SP-1200). And the best advantage to the drum library is that they have the luxury of experimentation, mixing and matching the 50's Gretsch with the 60's Ludwig, tuning to pitches in the key of the song, and so on.

There are also plans to put in a tape machine at some point — "I'm a big fan of tape," says Mincieli "We'd like to have a deck, just to record *through*, you know, to get the sound without having to print tape for entire sessions."

Besides the microphone, drum, beatbox, and keyboard collections, the typical gear for tracking Alicia's sessions include (in addition to the AWS900's 24 channels of SSL pre-amps) Neve 1073s, and 16 API 3124 mic pres, which Mincieli particularly likes. "They have a lot of headroom, you *can* hit them hard."

And compression strategies vary. "A lot of times we'll use it more for tone than squashing something," says Mincieli. She also favors the Tube Tech CL 1B, "you really cannot go wrong with it; it's so easy to use, it's like it teaches you how to use a compressor." Likewise, the Distressor sees a lot of action, "on vocals, bass, everything, it's so versatile, unlike a lot of the standard formulas, like dbx 160 on a kick, LA2A, or 1176 on bass, whatever."

But Alicia stresses that her process is hard to pin down. "There's no single way of doing it. Sometimes I come in with something I've done at home, or Kerry will have some stuff going on the MPC that I'll start singing over, or run in there and play something. Sometimes we'll hit it as a blank slate, I'll just sit down and play something and take it from there."

"It's so unpredictable one day to the next," agrees Mincieli. "They'll have a demo from modules at home on a Pro Tools system . . ." so the goal might be to use the "space and depth [of the studio] to take it to another level in terms of tracking. . . . Or maybe one day someone's sitting here putting an MPC through an Roland SP1200 for that dirty sound."

Construction is underway for the B room, which will be a third floor duplicate of the main studio A room, with a separate entrance from the back stairs and will afford seamless transition from A to B, so that any phase of tracking, mixing, or arranging and sequencing at either extreme of complexity can take place simultaneously across three multi-functional floors.

FLASH FORWARD
When I asked Alicia for a favorite track, she

and Krucial traded a quick, nostalgic glance and both answered at once: "Troubles," recorded back in the Harlem apartment days, with Krucial scrambling to pull a groove out of the MPC, and Alicia laboring to get a decent piano sound out of some old module. Though they took it downtown for mixing and vocal dubs, the album features most of the original demo.

What then, is the strategy in a high-end studio, working with say, an MPC, to keep the grit, but maximize the strengths of the rest of the gear? Working with MPC's requires the same flexibility

as the rest of the tracking, as Mincieli points out, "sometimes it's a skeleton, which we'll dump into Pro Tools and track live instruments on top, but a lot of times they've been doing mixes

5 EASY PIECES

KERRY "KRUCIAL" BROTHERS

1. It doesn't matter what equipment you have, it's how you use it.

2. Master your gear, narrow it down to three or four pieces of gear and study them.

3. Always make a 2 track of the song you're working on, in case its lost, you have a 2 track and you could reprogram it the exact same way.

4. Have your favorite tools and sounds together on your computer. You can be so organized nowadays with today's technology. . . .

5. Keep A & R Label people out the studio while you're creating.

as they go along, they're used to it, been living with it. So we'll try to maintain the same balance, put the [tracks] on separate outs, doing multiple passes if necessary [as it only has eight outputs] to keep the separation. . . ."

Cool.

And this year, Alicia had her film debut in *Smokin' Aces*, an ensemble cast thriller directed by Joe Carnehan, currently in post-production. She hasn't yet been called in for ADR, which she imagines might be more like vocal tracking, but generally compares

the experience of acting for film to tracking music this way: "It's really different. It's a great experience, very freeing to play a character; you have to give yourself over to someone else's creative vision. Even if I'm a guest on someone else's record, that's *my* voice on there, so I've got to be well prepared and in control of that."

Though The Oven has hosted some high profile guests, Brothers explains that they aren't really interested in running a commercial operation for outside talent. He says, "Though when we have people come in, it's professional, mainly, we want to bring people in that we want to collaborate with, more than as clients." Current projects include sessions for Sony artist Lyfe Jennings, and Krucial's own EP, *Take Da Hood Back*, featuring the rapper Illz, out later this year, and an Alicia Keys album sometime next year. Alicia's poker faced about what that might sound like, but did admit to dreams of trying some radically different things in the future, "Classical pieces, modern stuff even, instrumental stuff I write. I'd love to do jazz standards, do a tour of classical halls or jazz clubs — that would definitely kick my ass and make me get it together." EQ

John Dylan Keith is a writer and musician living in Brooklyn, NY.

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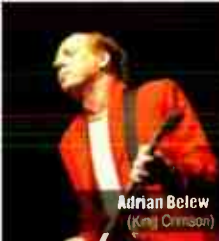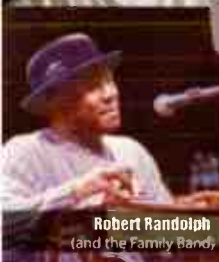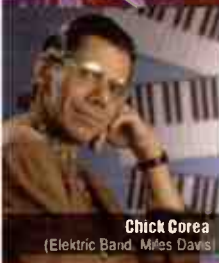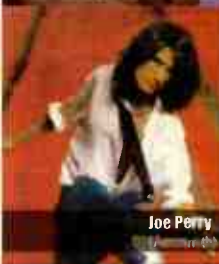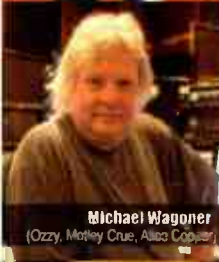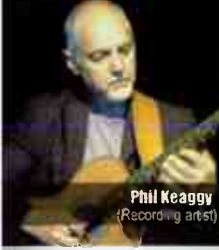
ROOM TUNING WITH RUSS BERGER

by Rich Tozzoli

Controlling the sound of a room is no mean feat. But when it comes to setting up a high-quality commercial, home or broadcast studio, you almost certainly need to turn to the pros.

Since I have a personal home studio that varies in use from 5.1 mixes to composing for TV, I thought it would be interesting to pose some questions to Russ Berger, an award-winning designer whose team's completed over 2500 studio-related projects, and his crew, on how to improve my sound space. Long-time friend and design engineer Vincent Miraglia was kind enough to do a scale drawing of the room, shoot some video and pictures, and send it down to RBDG for analysis. Aside from that, I just wanted to pick Russ' brain about the oft-neglected arcana of acoustical design.

Has your work changed in the face of The Amazing and Incredible Shrinking Studio?

Russ Berger: With the cost of GOOD gear dropping to a point that's affordable for the consumer-level musician, there's been an influx of individuals that are beginning to see that spare bedroom or garage as a perfect spot for a studio. Gone are the days of the $40,000 tape machine or even the $20,000 Pro Tools setup. Today you can get a great mic for under $200, an interface, computer, and controller, and enough plug-ins to make you dizzy for under $3,000.

As for the room, it's the one variable that will never change. A 12'x10' bedroom 30 years ago sounds just as bad as a 12'x10' bedroom does today. Is the "shrinking" studio a good thing? Sonically, no; creatively, yes! Is it here to stay? You bet.

But to get to your question, "how does our work change with the integration of the shrinking studio?" It hasn't. We approach the small room with the same attention and objectives as we do the larger rooms. The fundamental difference is the level of compromise with which the owner is willing to live. A small room will never sound as good as a larger room, no matter how many plug-ins and outboard gear you throw at it. And we understand the compromise and have realistic expectations about the things that can be done to drastically improve the acoustical quality of your small room.

So we use physics to help us create a bit of magic. When we look at a small room, we step back and take in the big picture. We look to adjoining spaces, overhead spaces, anything that might provide us with a little space that we can leverage.

You can realize the value of having an adjoining ambient space by walking into your bedroom, closing the door, and clapping your hands. Now, open the bedroom door to the hallway and do the same. Do you hear the difference? Do you hear the nice reverberant tail coming from the next room? It is on this premise that we designed a product that we implement quite often, the pArtScience SpaceCoupler. This device not only allows us to leverage the adjacent space as the open door did, it also excites the sound waves

in a way that produces a very nice round ambience to a small room. That being said, the number one most important thing in approaching the design of a small room will be in your understanding what it is and what it is not.

OK, well what's the most common problem in smaller studios today?

RB: The most common problem in smaller studios is low-end reproduction. You can count on anything below 400Hz to be completely unreliable. A certain amount of space is needed for the low-frequency sound waves to develop. We advise the client that the mid to low end will always be problematic. And the situation can be helped by the intentional placement of bass traps, and other acoustical treatments. Just know there is no magic bullet and the burden will fall on the engineer to overcome this weakness.

Do you notice less outboard gear in recent designs?

RB: Absolutely. Racks are big, equipment is costly, and it consumes a lot of real estate in an already small room. Plug-in algorithms are getting better and better and will continue to find favor among the home studio engineer.

Are more home studios integrating surround setups, and what design considerations come into play?

RB: 5.1 is here to stay. Even when designing a control room primarily used for stereo, we design it ready for 5.1 — even 7.1. You may not be mixing 5.1 now, but chances are you will be within a few years.

The surround sound setup design is not all that different from a left/right setup. Considerations to keep in mind are: left to right symmetry, monitor placement, and mix position. I would suggest starting with identical monitors at ear level with minimal reflective surfaces between you and the speakers.

Does the increasing number of computer screens cause additional problems?

RB: Yes, anything that sits between the listener and the sound source is going to cause a problem. We like to incorporate projectors and acoustically transparent screens. This allows you to place the center channel right behind the screen and the problem is solved. You now have ample space to tile all your windows and nothing stands between you and your sound monitors. Be sure to listen to the projector before you buy. Nowadays, you can usually find ones that are relatively quiet. If a projector is not in your budget, take great care to place the video monitors in a way that does not impede your ability to hear what's coming from your speakers, and limit your monitor count to two if at all possible.

OK, let's get it over with: pitch me on your new acoustical product dealie with Auralex.

RB: Well, we wanted products that work well and look great, hence the name pArtScience: part Art, part Science. The SpaceArray is a simple diffusor that works much like any other diffusor, though it's special in the quality of construction, materials, cost, and the absence of strong visual patterning.

The SpaceCoupler, however, is an entirely new product to the market. It's based on a technique we've been using for over 20 years in our studio designs. It allows you to borrow the volume from another room, closet, or even the space above a grid ceiling. What it can do to the sound of the room is exciting, literally. It also has great applications in auditoriums and restaurants. Though we have not done it, it can even be stacked three high and built into a bedroom or closet door.

So, after looking at the specs of my room, what do you think needs the most attention?

RB: I'm not sure if it requires the *most* attention, but let's take your mix position as a starting point. Right now your LCR monitors sit between a door on one side and a wall on the other. The door will cause a problem because of the fact that it will go diaphragmatic at certain frequencies. This will cause a few decibels of variance at those frequencies from left to right, resulting in a poor stereo image. We're going to flip the mix position to put the wall with the window to your left. You have 128" between the wall and the door at your current mix position. In order to add symmetry between the monitors, we want to build a new wall 128" from your outside wall, perpendicular to the rear wall. This new wall will extend out a few feet and will provide a perfect space for some of your noisier rack gear. Your racks now will fit just between the existing wall of the closet and the new wall coming off the rear wall. Keeping in mind the resale value of your property, the basic objective will be, for all practical purposes, extending the closet out the 27.75" to make it flush with the inside wall. There are some other benefits to this arrangement that will become evident as we get further into the project. See, we have a simple palette from which to work and now we're ready to paint.

DESIGNING MEN II
TOP 10 THINGS TO THINK ABOUT WHEN DESIGNING A STUDIO
by Lawrence P. Swist

All of these will need to be integrated into that final environmental solution. It's a lot to think about at once. But the ultimate goal is to create an efficient and sonically accurate system from all the parts.

If you breathe and can form a sentence, it probably hasn't escaped you that today's production environment is a drastic departure from what it was in the past. After nearly a quarter century of seeing the state of the art backpedal while the digital world made strides to overcome its obsession with convenience at the sacrifice of fidelity, we've finally come to a point where these new systems are offering unified processes in which humans can truly function creatively.

The key to all this is the "system."

Whether it lies within the software or resides within the surrounding environment, a person's productivity will be directly proportional to the total system with which he or she interfaces. As a result, the studio design needs to be seen as a complete system providing a total environmental solution.

The following things to think about when designing a studio represent individual aspects of this total process or system.

1. Assess Your Real Needs: Take a long, hard look at your production techniques and your desired end results to determine what you actually need in terms of facility requirements. Ask yourself, "What is my 'system' of production and how can the facilities be an efficient part of that system? What acoustical space will I actually need for "live" recording?

2. Develop a Concept Model: Once you know the kind of facility you need, sketch the layout of the rooms, visualizing the ergonomic characteristics such as equipment access and traffic patterns. Pay attention to sight lines for visual communication with the talent (if any). And, most importantly, create room geometries that make acoustical sense and contribute to the overall acoustical system, instead of creating spaces that require added surface treatments to fix problems afterward. This may require that you spend some time studying room modes, ratios and the effects of reflective parallel surfaces.

3. Design An Acoustical System: The perceived need for an acoustical system design has waned in some circles with the advent of lower-cost recording/production technologies that fit into increasingly smaller spaces. Unfortunately, "smaller spaces" do not bode well in the physically constant world of architectural acoustics. So it's essential to design an acoustical system from the start rather than to apply fixes later. This can be a rather daunting task for the studio owner to tackle because of the sheer number of variables. The reverb times of each space should be predictable and calculated to be even across all bandwidths. The character or diffuse nature of the reverb and early reflections should be engineered into the system for each space and tuned to that space's desired function.

4. Design An Isolation System: More aptly called "noise control," isolation systems offer means of controlling sound intrusion from outside-to-inside and inside-to-outside the facility, as well as noise intrusion from mechanical systems (HVAC) and equipment-cooling fans. Noise Criteria (NC) specifications should be determined for each space and systems should be designed to meet these specifications. Digital technology has given us the capability to record with greatly increased dynamic range, but it requires the application of stringent noise-floor specifications in order to take advantage of it. Isolation systems are notorious for being the most expensive part of the studio design because of their robust construction requirements. Isolation is only achieved by a complete system of integrated components with any one omission causing the rest of the system to become ineffectual.

5. Select A Monitor System: Selecting a monitor system beforehand and designing an environmental solution around that monitoring source results in the ability to create a control room whose output translates accurately to the outside world. Determining the type of monitors and their configuration (2, 2.1, 5.1, and so on) and predicting the anticipated monitoring levels allows you to determine the control-room geometry along with the acoustical and isolation systems design requirements.

6. Design The Mechanical Systems: There's nothing worse than a studio with insufficient cooling and ventilation. If these mechanical systems are not designed into the studio from the start, it will be studio owners' worst nightmare for both themselves and their future clients.

A studio is not a typical environment from an air-conditioning standpoint because of sealed rooms with high BTU outputs that may require cooling even during winter months. A system must be designed that 1) meets the demand for fresh-air cooling year

round, and 2) meets the noise criteria requirements by the use of silencers and/or baffled ducting. The studio designer does everyone a big favor by bringing a mechanical engineer experienced in this type of design into the project from the start.

7. Consider Future Expansion: The studio designer should always keep a eye toward the facility's future expansion, especially when choosing a site location. The use of modular, movable isolation and modular, acoustical systems may be a very desirable solution for an owner who sees his facility moving to greener pastures at some point, or who does not want to invest heavily in leasehold improvements.

8. Be Realistic About What You Can Afford: A good studio facility design takes into considerations the real needs required to produce the desired product. However, financial constraints may require that an owner builds his facility in phases. This necessitates the drafting of a plan that prioritizes phased building according to productivity and profitability.

9. Hire an Experienced Contractor: When asked, a lot of contractors will tell you they have experience building studios and isolation systems. But beware! They are NOT experienced simply because they once put up drywall in the men's room at the now-defunct Hit Factory. In all fairness though, contractors may try to help their clients by suggesting cost-saving materials and/or building techniques during construction. However, what starts as good intentions usually turns into disaster because the changed materials may not possess the acoustical properties specified for the system design and any changed designs may short circuit the isolation system's decoupling properties. Remember that any one point of compromise can render the entire system ineffectual. Given all this potential for compromised end results, the studio designer should give a good hard look at the feasibility of using the prefabricated modular isolation systems that are available as an alternative to conventional construction.

10. And, Most of All, Hire an Experienced Designer or Acoustical Consultant: Like many of us, new studio owners have to wear a lot of hats. But the truth is that multi-tasking truly makes you stupid, especially when experience is the prime prerequisite for putting on certain hats. You can read all you want and be the smartest man in the universe, but, ultimately, the person who has actually sat in the chair the longest and who possesses the proper skill-set to translate experience into working models is going to have the advantage. That experience is invaluable, especially at the conceptual stage of the design. This doesn't mean you have to hire a turnkey design/build firm. Many people don't have the means to do this. It simply means that a little quality help or corroboration at the beginning of the process can make all the difference.

MASTERING IN YOUR DAW

When it comes to mastering, can you do it in your DAW or do you need to get specialized? Well . . . it depends.

by Craig Anderton

Let's get one thing out the way: There's mastering and there's MASTERING. MASTERING, as in this is a crucial CD for your band, you're going to duplicate 1,000 copies, you want to blow people away when they hear it ("you only get one chance to make a first impression"), and you don't want any mistakes. This is when you call in the professional who has done this dance a zillion times before, and will squeeze every last bit of musicality out of your creation. Yeah, you'll pay — but hopefully, when you look back (and assuming you chose the right mastering engineer, which is a whole other issue), you'll think it's the smartest move you ever made.

But then there's mastering, with a small "m". It's the demo that the band listens to when deciding the song order, the live recording that gets sold at gigs, the 30-second spot for Mighty Dave's Kool Kar dealership, and the narration for the kiosk video done by one of your regular clients. You're not going to hop on the first plane to Maine and beg Bob Ludwig to do the mastering, so you decide to master it yourself. But do you really need a separate digital audio editor with a bunch of pricey plug-ins, or have DAWs progressed to where you can do it all without leaving your favorite host software?

First off, 95 percent of mastering is not in the tools but in the *ears*. If you have good ears, you can probably convince your DAW to do a decent job of mastering. Granted, most project studio, computer-based mastering is done with specialized digital audio editing programs (Adobe Audition, BIAS Peak, i3 DSP-Quattro, Magix Sequoia, Sony Sound Forge, Steinberg Wavelab, etc.). They offer deep navigation facilities, the ability to zoom in on waveforms, pencil tools to draw out clicks, and include mastering-oriented plug-ins. However, if your mastering needs aren't too demanding, there are several ways to master using conventional multitrack recording programs. Interestingly, some can even do tricks conventional digital audio editors can't do.

MIXING FOR MASTERING
There are several steps you can take while mixing to make for easier mastering. You should do these whether you plan to master material yourself, or hand your project to a mastering engineer.

■ Always mix with the highest resolution possible — don't downsample or do bit reduction (dithering) until the very end.

■ Add any fade-ins or fade-outs during the mastering process, as you'll have a better sense of the ideal fade time as you do the mastering.

■ Don't trim out all the "air" at the beginning of a tune. A clean sample of this may be essential if you need to apply any subsequent noise reduction or other

audio restoration process, as the sample of hiss, hum, or whatever can be loaded into a noise reduction program that mathematically subtracts the noise from the track. Besides, sometimes you don't want too abrupt a transition between dead silence and the beginning of a track.

■ Don't add any processing to the overall mix, just to individual channels — processing completed mixes is best left for mastering.

As you mix, watch closely for distortion. A few "overs" may not be audible as you listen to the mix, but may be accented if you add EQ or limiting while mastering. It's better to concede a few dB of headroom rather than risk distortion.

■ Roll off low frequencies in tracks that don't have any low frequency energy. You don't want any subsonic signals to work their way into a mix or a final master recording.

■ Don't normalize any of your mixes, as that means another stage of DSP (which may degrade the sound); and you may need to change the overall level anyway when assembling all the mixes into a finished album.

■ **Always make copies of your *original* mixed, high-resolution files prior to mastering. If the song is later remastered for DVD-Audio, included in a compilation, or used in any other context, you'll want a mix that's as easy to remaster as possible.**

"REALTIME" MASTERING WITH A MULTITRACK PROJECT
A major difference with mastering in a host program is that you have the option to adjust mastering processors (which affect the final mixed output) *as you mix*. With digital audio editors, you are always working off-line with a previously mixed file. However, there are advantages and disadvantages to both methods. The process of mixing is daunting enough without throwing mastering into the equation; still, mastering while you mix means you know exactly what the final version will sound like.

Another consideration is that many people feel that separating the mixing and mastering process is beneficial to both, as they are different disciplines. You might want to "sleep on your mix" before mastering it.

If you decide to master as you mix, you'll be inserting mastering processors in buses. This is because when you create a non-surround multitrack project, eventually all the tracks are going to dump through a mixer into a master stereo output bus. As with individual channels, buses have provisions for adding plug-in effects. How effects are accommodated depends on the program; for example, with Sonar the buses have standard effects slots, just like tracks. But Cubase SX has a few extra touches — both pre- and post-fader/post-EQ slots for effects, as well as excellent dithering algorithms for doing bit reduction (Figure 1). Note that Cubase SX has two post-fader insert slots, while Cubase SL has one.

Fig. 1. This stereo output bus in Cubase SX is dedicated to mastering effects. The PSP MasterQ and a multiband compressor goes pre-fader, while the UV22HR dithering plug-in goes into the post-fader slot.

If a program doesn't include a post-level control effects slot, try feeding one bus into another. Insert the effect that should be post-level control into the second bus, and leave the second bus output level control at 0. Control overall level at the output of the first bus.

Once any effects have been added and edited as desired, you have three main options to create a mastered file:

■ Export the track (also called *bounce* or *render*) to hard disk. This reads the final mixed output signal, including the results of any effects you've added, and writes the file to hard disk. Note that it still needs to be assembled with other tracks to create a complete CD.
■ Send the output to a stand-alone CD or DAT recorder. This will record the final, mastered song, although again, you'll still need to assemble these.
■ Send the output through analog mastering processors, record their outputs into two empty tracks in your multitrack, then export those tracks to your hard disk.

A different technique is a compromise between mastering as you mix and mastering offline. After hearing a mastered song, you'll sometimes wish you had mixed the song a little differently. For example, the mastering engineer might add some compression that subtly changes the mix, requiring you to go back and do a quick remix (let's hear it for mix automation).

So, to create a more "mastering-friendly" mix, consider adding some multiband compression and overall EQ (usually a little more high end "air" and some tweaks in the bass) in the master bus to create a more "mastered" sound. Mix the tune while monitoring through these processors. Then, when you render or otherwise save the file, *bypass the master effects you used*. This results in a raw mix you can master in a separate program, or give to a mastering engineer, who anticipates the use of mastering processors but doesn't incorporate their effects in the file. Should you do this, you may need to tweak the overall level when you remove the processors.

MASTERING INDIVIDUAL TUNES IN A DAW

Mastering a multitrack project in real time is a fairly new technique that's definitely not for everyone. So, let's look at two approaches to mastering that use the DAW more like a standard digital audio editor. (Note that Adobe Audition and Magix Samplitude/Sequoia are combination multitrack hosts/editors that are intended to do mastering as well as multitrack recording.)

The more "old school" approach is to take each tune, master it, save it as a stereo (or surround) file as a separate operation, then assemble all the tunes into a cohesive whole. A newer approach is to assemble all the tunes in a workstation (*e.g.* Sonic Solutions), and apply any processing, level changes, etc. on a more global level. Basically, this combines both mastering and assembly as one operation. Let's look at the individual song approach first.

Open up a new file in your DAW, and import the mix into a track. If you need to process the right and left channels independently (*e.g.* there's an instrument in the left channel that has excessive treble, and you want to EQ just that channel a bit without processing the right channel), then separate the stereo file into two mono files. Most software will let you do this as part of any "bounce to track" function. You may also be able to bring a stereo file into two

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tracks, use the balance control to separate the left and right tracks, then recombine them.

Here are some of the editing operations you might want to do:

Reduce peaks using automation envelopes. If some peaks are significantly louder then the rest of the material, this reduces the chance to have a higher average level, as the peaks use up much of the headroom. One solution is to add limiting, but another option that can affect the sound less is to use an automation envelope to reduce the levels of just those peaks. If the automation works on just a few cycles of the waveform, you probably won't hear

Fig. 2. iZotope's Ozone 3 is a "mastering suite" of processors that can also work well as a master bus effect. This shows the multiband compressor in action, but note that the loudness maximizer stage is also active to add a subtle amount of "brickwall" limiting.

any difference compared to not reducing that peak; but once the major peaks are reduced, you'll be able to raise the overall level. (And if you do add any compression, it won't have to work as hard.)

Add dynamics processing. Generally, you'll use a dynamics plug-in for the track holding the file, or possibly for the bus it feeds. Multiband dynamics processors are your best option; compared to standard compressors, they're more transparent because dynamics control in one frequency band doesn't affect other frequency bands (Figure 2). However, some people *like* slamming a stereo compressor because they can hear some "pumping" and "breathing," which can give more of a vintage sound.

Another popular option is a loudness maximizer plug-in. This type of processor can greatly increase the overall average level, producing a "hot" sound. These plug-ins are often overused on today's recordings, which creates distortion and degrades definition. I advise increasing the amount of maximization until you can hear the effect working. Then reduce the amount so you *don't* hear it working. Eventually you'll find a "sweet spot" between retaining good dynamics and increasing overall loudness.

No matter what form of dynamics control you use, it will affect the mix by reducing peaks and bringing up lower level sounds. This is equivalent to having a more "even" mix, and might be desirable. But if the mix ends up sounding too uniform, reduce the amount of maximization. Peaks and valleys are essential to a satisfying listening experience. A really "loud" cut may seem impressive at first, but is fatiguing after a

short period of time.

Add EQ. For mastering, you'll hopefully be dealing in broad strokes — a mild bass cut, or a little high-end lift — because any serious response issues were dealt with during the mix. This is why many older equalizers, like the Pultec, are favored for mastering; they have a subtle, yet pleasing, effect on the sound. Plug-ins like PSP's MasterQ (Figure 3) and the UAD's Pultec emulation fulfill this role in software.

If significant EQ problems exist, like large midrange or low-end peaks, you'll likely need to plug in a full-blown parametric EQ, and tweak out the individual problems.

Your DAW probably includes EQ, but be careful about using it. The DAW's EQs were likely optimized so you can open lots of instances at the same time, which means they can't get too nuts about consuming CPU power. "Mastering oriented" plug-ins tend to eat more power, but it doesn't matter because you're using them on a simple stereo file, or inserted in a stereo bus, rather than using a lot of instances on individual tracks.

Other goodies. Some people swear by particular plug-ins for mastering, like "exciters," stereo image wideners, and the like. I tend to avoid these because in most cases, dynamics and EQ cover 99 percent of what's needed. But in some situations, a little high-frequency exciter helps add a different kind of sparkle than EQ, and once I even added a phasing effect in the middle of a tune during a spoken word part (the client loved it). If a mix has a certain direction, it's often best to enhance what you have rather than try to turn it into something different.

MASTERING AND ASSEMBLY IN A DAW

You can do album assembly in a multitrack host, either of individual, previously mastered cuts, or of raw mixes that you master and assemble as you go along. With the second option, you bring the tunes into the host program, arrange them in the desired order and, when complete, render the whole thing to disk as one large file. If needed, you can then import this into a CD-burning program to add track markers, CD Text, etc. Note that some programs include CD burning as part of the program.

When assembling within a DAW, files can be placed end-to-end in a single track, each in its own track, different files in diff...
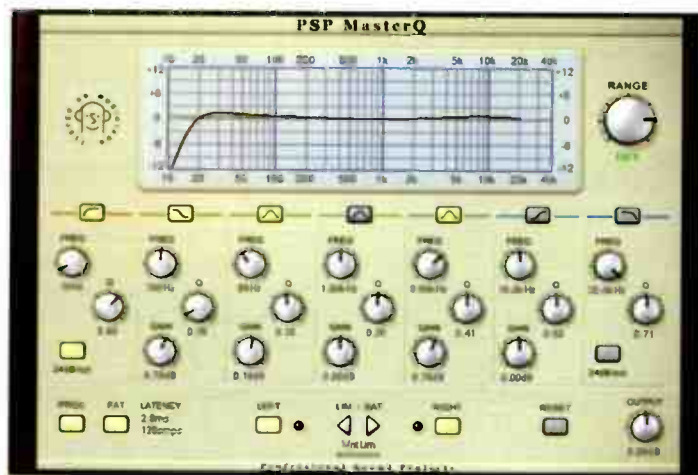
Fig. 3. PSP's MasterQ is a fine example of an EQ designed specifically for mastering. It has low pass, low shelf, high pass, high shelf, and three parametric sections. It also draws a fair amount of CPU power compared to typical EQs included in host programs.

tracks (Figure 4). For example, one project I mastered had three distinctly different "flavors" of mixes: Some were mixed in a studio that probably had bad acoustics, because the bass was too heavy. Another set of mixes was very neutral (just the kind I like to work with). Another set had compression applied to the master bus, and were already somewhat squashed.

I sorted each type on to its own track, and applied the same processing to like-sounding files — the bass heavy

Fig. 4. The tracks to be assembled sit in alternate Sonar tracks. The first and second tracks have the "industry standard" two-second space between them; the second and third tracks have fades added so they crossfade. The Master bus has a PSP MasterComp inserted to do compression. Note the waveform preview that Sonar generates in the Master bus as the file plays back, which makes it easier to verify clipping isn't taking place (otherwise part of the waveform would turn red). Also note the small green "flags" in each clip that indicates the maximum level that was attained. After listening all the way through and verifying that all is well, the entire file would be bounced to disk.

ones needed the same kind of bass EQ, whereas the neutral ones needed a different type of EQ. I also added instances of multiband compression to both of these tracks. The songs that were already compressed didn't get any multiband compression, but did need a fair amount of EQ. This created a few peaks, so I added a slight amount of limiting.

GETTING CREATIVE

Because you're assembling in a multitrack environment, you can do tricks that are difficult to do in typical stereo editors. Here are some:

■ It's easy to create just about any type of crossfade within a host, either through an automatic crossfade function where overlapping two tracks creates a crossfade, or by having the tunes on separate tracks and adding fade ins/outs manually.

■ For dance or continuous DJ mixes, you can dedicate a separate track for transitions or sound effects.

■ Add effects automation to vary effect parameters in real time (e.g., increase a high pass filter's cutoff as a song fades so it seems to "disappear" just before the next track comes in).

■ Use automation to do extremely sophisticated fade ins and fade outs.

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Fig. 5. The soundtrack for a video I shot at the Frankfurt Musikmesse is being mastered in Sony Vegas. Note the peak hold levels (circled in red) that indicate that the maximum level attained was –0.1dB — perfect. The values circled in blue indicate the fader setting of 0.0, which is also pretty much ideal.

This process essentially creates a "meta-mix," where instead of mixing individual *tracks* to create a two-track *file*, you're mixing two-track *files* to create a final *album*.

SETTING LEVELS

Channel headroom isn't much of an issue in today's DAWS, which use 32-bit floating point, 48-bit fixed, or even 64-bit resolution. However, when you sum them all together at the master bus, overloading is a definite possibility unless levels are set properly.

Output level clipping indicators aren't very helpful for serious mastering; an unambiguous numeric readout at the output that indicates the peak level relative to 0 (called the "margin") is much better. For example, +1.7 would mean the maximum signal was 1.7dB above 0; -0.8 would indicate the maximum signal came within 0.8dB of the maximum available headroom (Figure 5).

Meters that flash these values are helpful, but a "peak hold" feature is more useful because you don't have to keep watching the meters — just check levels at the end of the song, and adjust the output faders accordingly.

Assuming the faders themselves are also calibrated, here's an example of how to use this feature. Suppose the current fader setting is 0 and at the end of the song, the readout displays a margin of +2.0dB. Bring the fader down to –2.0, and the next time you play the tune all the way through (after first resetting the meter value, of course), the maximum level should hit 0.0.

However, you don't want the margin to be 0 but instead slightly less, like -0.1dB below maximum. If a tune has peaks that hit 0 for more than a few milliseconds, it may be rejected by a CD pressing plant on the assumption that those peaks represent distortion.

HOW TO MASTER MASTERING

I certainly don't mean to imply that following the above techniques will make you a mastering engineer. However, if applied correctly you'll end up with mixes that sound better than if you'd just left them alone — and that's the whole point. Besides, if you start working on your mastering chops now, you just may discover a whole new outlet for your creativity. EQ

World Radio History

Gearhead

THE TOP 10 PIECES OF HARDWARE THAT STILL MATTER

Think you can do everything "inside the box"?
Don't believe the hype — hardware still has a few tricks up its sleeve.

by Craig Anderton

Sure, software is great, and you can do most of what you need inside a computer. But the operative word is *most:* Your computer craves hardware that will help fulfill its software's maximum potential. Like what? Like these top 10 pieces of hardware, presented in no particular order.

HIGH-END MIC PREAMP

I'm not an audiophile snob. When it comes to preamps, the ones in the average audio interface do a fine job of converting a mic signal into something your computer can handle. And ultimately, a great vocal will make it through a lousy preamp, while no preamp can fix a "karaoke-night-at-the-local-bar" vocal. But having played with some high-end tube pres, they *can* make a noticeable improvement — not just with mics, but with synths, electric guitars, and other sound sources. Multiply that improvement over multiple tracks, and the quality adds up. Furthermore, a really good tube pre can even serve as a "mastering processor" to sweeten mixed tracks.

TUBE GUITAR AMP

Modeling preamps are wonderful, because they can provide a zillion different — and satisfying — sounds at the flick of a switch. Yet there's something special about miking an amp with a real tube, going through a real speaker, and having that signal travel through real air to a real mic (especially a good ribbon mic). You don't need anything elaborate; even a little tube amp with an 8" speaker can do a kick-ass job on guitar recordings. You may need to deal with some noise, hum, and other issues that modeling manages to banish — but the results can be worth it.

HARDWARE WORKSTATION KEYBOARD

Soft synths have come a long way, but one of the main values of a hardware workstation keyboard is that it can provide a "mini-studio" within your main studio. While the vocalist is tracking into your computer, the keyboard player can be in another room fine-tuning an arrangement, or maybe doing some songwriting. Some workstations even record audio, so the guitarist might use it to practice a lead against a backing track. And of course, its own sounds will augment your collection of soft synths.

PHYSICAL CONTROL SURFACE

Nothing quite beats a mouse for precision editing of specific parameters. But when it's time to mix, faders are what's happening: Being able to grab any one of several channels, or move multiple faders simultaneously, makes mixing feel more like a performance and less like fixing typos in a word processor. As

a bonus, many control surfaces include addi
tional "pages" to control specific synths, as
well as other virtual gear. Motorized faders are
even better, because it's so easy to edit
moves: Grab a fader, punch in. Cool.

STAND-ALONE CD DUPLICATOR

Of course your computer can burn CDs. But
CD burning is still a function that likes to have
the computer all to itself — any interruption in
the data flow means you may have another

dead CD to add
to your collection
of "Sign up for
AOL now!" discs.
Besides, one of
the keys to a
profitable busi-
ness is multi-
tasking — if you
can make CDs
for your clients
while something else is going on, so much
the better. You might even be able to add
another profit center to your operation with
one of those duplication towers that does
short production runs. After all, a lot of
bands would love to have a hundred CDs or
so *right now* to sell at their next gig, and
don't want to deal with the turnaround time
of commercial duplication.

REALLY GOOD DI BOX

This is like the mic pre tip: There are interfaces
with instrument inputs that work just fine,
but there are also Class A DI
boxes that translate instru-
ment sounds at the
"straight wire with gain"
level of fidelity. And
you don't just have
to use them for
recording; a good
DI box can provide
the optimum inter-
face between, say, a
guitar and a rack-mount studio
effect that smokes the guitar player's floor
pedal effect.

QUALITY CONVERTERS

A/D and D/A conversion are
the links between the analog
and digital worlds, so if
they're not happening, neither
is your sound. Remember
when people discovered that if
they used a DAT machine's digital

out through a quality converter instead of
taking the audio outs from the built-in
converters, the sound quality was better?
No surprise: You won't find a top-of-the-line,
jitter-free converter that costs a grand in a
box that costs considerably less. And the
beautiful thing about high-quality convert-
ers is you can use them in a variety of
ways. When you're not recording, let the
converters go slumming by converting
your CD player's digital outs to analog.
Mmmm . . . tasty.

SOMETHING WITH GOOD AUDIO TRANSFORMERS

Audio matching trans-
formers color your
signal — but a
high-quality
transformer can
color your sound
in a pleasing
way. Start with
the mic — you might
want to try using a transformer
as an interface to an input instead of
just going through a preamp. Direct boxes
often have transformers, and these can
make a bass sound even "rounder." Just
remember that not all transformers are cre-
ated equal; listen carefully before you buy.

TUBE COMPRESSOR

Yes, I realize this is the third time I've
mentioned a tube device in one article,
but there's a reason: Tubes are pretty
complex devices that clearly mess with a
signal differently compared to digital devices.
Given how much engineers like to use com-
pression, having a
tube compressor
around provides one
more worthwhile
tonal color, espe-
cially for drums,
bass, and guitar.

HARDWARE SIGNAL PROCESSORS

There are still some signal processors
that exist only in hardware. For example,
one of my favorites is the Dolby 740
Spectral Processor, which is no longer in
production but is a great mastering tool for
certain types of material. A plate reverb still
sounds more like a plate than an emulation
of same; ditto the spring reverb in guitar
amps. A talk box is different compared
to a vocoder, and so on. Sure, sending
something out of the computer, processing
it, then bringing it back in can be a bit of a
pain in the butt, although some programs
(like Cubase SX) make the process easier.
But the bottom line is that it doesn't pay
to be a purist and keep everything
"inside the box" if you don't get to
groove on all the cool non-virtual
effects out there.

DIGITAL CAMERA

No, you haven't wandered into the wrong
magazine: A digital camera is a fine addi-
tion to the studio. First, it's great PR — take
pictures of the band members doing their
thing, print out some of the best pictures,
and give them to the band. Every time they
look at a picture, they'll think of your stu-
dio. Second, you can document a session.
What exactly was in the guitarist's rack
setup? Snap a picture. Take a picture of your
drum miking setup, and if it was particularly
good, you'll know how to duplicate it in the
future. Which guitar was the guitarist using
on that session? If you took a picture,
you'll know.

See? Hardware still has its uses, and it's
not going away any time soon. I won't get all
Taoist on you, but balance is indeed a Good
Thing. For the mathematically minded, the
equation is simple: The right software + the
right hardware = the right studio.

IT'S A BIRD, IT'S A PLANE...
SSL XLOGIC SUPERANALOGUE X-RACK

Guilty pleasure? Or, just plain guilty?

by Robert Hoffman

Let's be honest: Who hasn't wanted to own or work on a big SSL the size of a battleship at some point in their career? Sure there are acoustic issues having such a behemoth in the studio, and the in-the-box guys will tell you that plug-ins have replaced the need for hardware, but you'd be hard pressed to deny that SSL has defined the sound of modern pop, R&B, rap, and rock music. And there are two reasons most of the top mixing engineers are working on SSLs: the sound, and the flexibility. With compression, gates, and EQ on every channel, SSL has forced every other large format console manufacturer to rethink their own designs and allowed the mixing engineer unprecedented control and routing flexibility, as well as total recall.

SSL's newest console, the XL 9000 K series, boasts the new SuperAnalogue circuitry, which includes extended bandwidth, short signal paths, oxygen-free cabling, and a host of other technological advances that has many engineers singing the praises of

sonic transparency. And the introduction of the XLogic series has put the SSL sound within reach of many more studio owners than the SSL console allowed. Besides which, the X-rack is a four-space modular rack that can host eight modules, much like a dbx 900 rack, or an API 500 series rack. Currently, SSL is shipping the dynamics module, the mic amp module, and the channel EQ module. I was sent a rack containing eight dynamics modules so my review focuses on that module and the host rack.

OK, the X-rack is surprisingly light, but sturdy. My trusty UPS delivery man dropped the box over the fence into my yard, about an eight foot drop, but the rack powered up and has worked fine since day one. Whew. The knobs look like the same knobs found on large SSL consoles, as do the buttons. The extra large power button is located on the front, and provides a nice blue light upon power up. The only other controls on the host rack are one selector knob for choosing

memory locations and three small buttons for saving, copying, and setup functions — but more on that later.

The back of the rack contains XLR connectors for in, out, and key inputs; MIDI in and out for total recall dumps; and two RS422 connectors for the SSL AWS 900 attachment. Each dynamics module has controls for compression ratio, threshold, and release, as well as the fast attack button and key input. On the gate, there are controls for range, threshold, hold, release, expander button, fast attack, and link. I should also note that every knob is continuous, no detents. In addition, there are LEDs for the gate and compression levels.

ACTION, JACKSON

The first thing I tried the X-rack on was vocal tracking. My wife has a very sweet voice — she sounds very young, and there's just not a lot of aggression there. The SSL compressor changed all that. With just a few dB of compression, her vocal was super aggressive and very in-your-face, without sounding squashed. While setting up the sound, I was quickly reminded of my one SSL pet peeve since the J series console — lack of faceplate markings around the knobs. For instance, the compressor ratio knob has markings of 1 and infinity at each end of the knob's throw. The threshold has markings for +10, 0, and –20, and the release has markings for 0.1 and 4. Of course we should all be using our ears when setting up compression and EQ, but it's nice to have starting points.

Next up, drums and bass. For me, this is usually where the SSL shines. I'd hesitate to use more than a couple dB of compression while tracking with the SSL compressors, but for mixing I'm not afraid to really dig in. I was able to dial a pretty hard knock into an otherwise dull sounding kick drum without losing much low end. I'd love to tell you that I started at 4:1 or give you more detailed settings, but the lack of faceplate markings makes that difficult.

Nonetheless, the SSL compressor really turned this kick drum into something usable. Plus, I've always loved the SSL comp on snares. I generally crank the ratio all the way to the right, the infinity setting, with a fast to medium release depending on the material. I'll then dial down the threshold until I hear what I want. The result is a super fat snare with tons of attack and sustain. Same results on the bass. I spanked it pretty hard, and the shape of the bass completely changed for the better: very

aggressive mid-range, but I did have to dial a bit of the low-end back in on my Daking console. The drum room and overhead duties also shined with the X-Rack, turning an otherwise anemic recording into a very exciting, explosive sound. The fast attack button with a high ratio and slow release is the ultimate drum room mangler.

I'm not big on gating things, but I put the X-Rack gates through their paces and was generally pleased with the results. On the snare, I could dial out extra hi-hat hits and some kick drum bleed. The range is only –40dB; I wish it went to –80dB like the Drawmer DS-201. To me, the gates are very usable but mostly for light duties. With the limited range, you can still hear some bleed. Though this tends to sound more natural, you can't get complete silence on, say, a live drum kit. I easily dialed down some weird resonance on tom tracks. Probably my favorite use of the SSL gates is on R&B programmed

drums. Setting the range all the way to –40dB, and carefully setting the attack and release times really cleans up programmed drums plagued by hiss and ground issues.

RECALL TIME

If you do any work with bands and record labels, recalling mixes is a fact of life. I've got piles of paper with settings from mixes done years ago — just in case. The X-Rack could make things a lot easier with its ability to recall settings. Once you're happy with your settings, just dial up an empty preset and hit the save button, then confirm by hitting the selector knob. Recalling the setup is just as easy. Dial up the preset you want and press the knob. Each channel that needs a change has a blinking "Sel" light. Matching settings is as simple as turning a knob until its corresponding LED goes out. The red LED means turn the knob left, green LED means turn the knob right. Buttons with

their LEDs lit during the recall need to be pressed. It couldn't be easier. All of my setups came back perfectly and I was able to recall the entire rack in just a couple minutes.

But do you *need* this?

I do. I recently went "old school" and bought a console with terrific EQ and routing possibilities, but no onboard dynamics. The X-rack fulfills my need for more compression and gates in a nice compact package. The total recall is an amazing bonus, but even without it, the X-Rack would be a great addition to any studio. The rack performed perfectly in both recording and mixing applications, providing the sound we've all heard on hit records. I'm excited to try the other modules as well. I didn't get to try the AWS connection, so I'm still curious to check that out. If they can keep the prices down, I think SSL will have a hit with this one, and with its modular capabilities, people can buy individual modules when they can afford them.

QUICK PICK

KRK V6 + V12 Sub [$1,997, krksys.com]

For the past couple of weeks, I've been fortunate enough to use a pair of KRK V6s and the V12 sub in my control room, along with my normal array of studio monitors. I have grown very fond of them for their clarity and sense of power — so much so that I choose them over seven other sets of much more expensive studio monitors as my main monitoring source for last week's mix. The biggest advantage that I've heard from these speakers is the transference rate — meaning my mixes sounded very similar on my crappy car CD player as in the control room. As a mixing engineer, this is my goal in life. I don't want any surprises.

The 120-watt, bi-amped V6s have a 1" tweeter, and a 6" Kevlar woofer. KRK is also manufacturing the V4 (4" woofer) and the V8 (8" woofer). One huge difference that I noticed, compared to my personal standards, was that the stereo image was huge. I didn't expect this out of such a physically small, much cheaper speaker. According to KRK, these speakers have "radiused edges for improved imaging." I've spent around a half an hour trying to figure out what the word "radiused" means. I still have no idea how to define it, however I can attest that it does definitely work. While switching between a pair of Mackie HR 824s and the KRKs, there was a huge difference in the stereo image.

One other point to mention is that KRK has made a great move by making all of their cones yellow. I'm constantly checking the cone to visually see how my mix is working. You can physically see the polarity of your kick drum and bass guitar working together or against each other on any speaker. This may seem very simple; however, even after staring at a computer screen for hours on end, it's easy to quickly look up and focus your eyes on the yellow cone to see if it's pushing out or pulling in. It's the little things that count.

The V6s by themselves sound very crisp and clear in the mids and highs, however the frequency response is 55Hz–20kHz. The low end is just not as present. So we hooked up the 70-pound V12 sub. Talk about

power. This sub definitely added the low, punchy bottom end we needed.

Now here's where you can get into trouble: This goes for every sub. So when we turned on the sub, our sense of reference went right out the window. The 250-watt V12 sub has a fixed high-pass filter at 80Hz, and a selectable low-pass filter, as well as a volume and phase switch. This offers you a lot of options to mess with, but you must shoot your room with an RTA to set the sub volume and have an accurate representation. Fortunately, we had a Behringer DEQ2496 Ultra Curve Pro in the tech room. I'm not a huge Behringer fan, but this RTA is very simple, cheap, fast and perfect. We pumped white noise in the room and adjusted the sub volume to make the visual frequency spectrum as flat as possible on the RTA.

Our control room is set very close to flat for a pair of ATC SCM20s and the Mackie HR 824s. I noticed that after adjusting the volume of the V12 sub to about 40 percent, the graphical display of the EQ was very similar to that of our current settings. There was a 3dB gain notch around 200Hz, as well as a 2dB notch down around 15Hz. If I had not used an RTA to shoot the room, I wouldn't have known where to set the volume of the sub.

With the sub thumping the floor and the crisp clean sound from the V6s, I kept getting the urge to turn the volume up. When I'm mixing, I try to check a dB meter at least every half an hour and keep it around 90 decibels. I caught myself at 101 near the end of my mix. These monitors do have a selectable limiter circuit and indicator light built in to help determine the optimum level without distortion and to save the life of your drivers. The level of ear fatigue from the KRKs is comparable to most other high-end studio monitors. No better, no worse.

These speakers have already gained a great reputation within the industry. I'm just glad to be able to join the chorus. —Jeff Anderson

FIVE EASY PIECES
JASON BECK: EVENTIDE

A little alchemy and a lot of sweat and loving care, making software from hardware is no easy feat. Eventide's CEO dishes on doing it, and doing it, and doing it well.

by Rich Tozzoli

Plug-ins. We love the fact that they show up on our desktop in droves now, but remember they all had to get created, designed, and tested before release. While many have no hardware-related background, some are based on actual pieces of gear that have been in the "field" for decades now. But how do you go about creating software from a classic piece of equipment that engineers, mixers, and producers are used to hearing? To get some answers, we hit Jason Beck, CEO at Eventide, with five big ones.

1 Eventide has been around since the early 1970s, making studio hardware. What models have currently been ported over to software?

Jason Beck: We have ported many of our vintage analog effects processors, including the Omnipressor, Instant Phaser, and Instant Flanger. The H910 and H949 Harmonizers, as well as some algorithms from the H3000 Harmonizer have also been ported. Finally, we

have created some plug-ins based on algorithms from our current flagship processor, the H8000.

But we approach this by carefully studying the characteristics of the original units and re-creating them in the software. In the case of algorithms ported from our current generation of Harmonizers, the focus is mostly on creating the user interface, since porting the algorithms over to a plug-in is straightforward. For our plug-ins that model the older analog processors, the opposite is true. In those cases, the user interface is straightforward because it resembles the front panels of the original processors. Modeling the sound of those older analog processors within the digital domain of a plug-in is certainly challenging.

2 Is there a golden unit of each hardware type that gets modeled?

JB: Yes, actual hardware units were used to study and model the characteristics of each

of the analog hardware products that we have ported to software. For plug-ins based on our more recent digital DSP based products, we simply ported the existing software to the plug-in format.

3 How do you transfer presets from hardware to software?

JB: In our older analog effects processors, the concept of a "preset" did not exist. For these products, we relied upon our years of user feedback and artist relationships to create presets that reflected the most common or well-known settings for each of our boxes. In the case of our more recent processors, the original hardware supported presets, so we were able to recreate those easily in the software versions.

4 What platforms does your software work with?

JB: We currently support Pro Tools TDM systems.

5 Do you make the software units more flexible than the hardware?

JB: Yes, when it makes sense to do so. For example, our H3000 Factory plug-in is much more powerful and flexible than the original H3000 algorithms it models, while still fully supporting all of the original features of those algorithms.

The biggest difficulty though, is preserving the character of an analog processor when translating it to the digital domain. Some aspects of analog designs do not translate easily to the realm of digital signal processing, which makes it difficult to make the plug-in sound and feel like the original hardware.

QUICK PICK

ANTARES AVOX VOCAL TOOLKIT [$499, antarestech.com]

Every so often, a product comes along that makes waves: something conversationally unpopular, yet garnering begrudging respect from professionals. Antares seems to be the company that supplies us with this type of tool exclusively. Look at the editorial rants about another product they came up with: Autotune. Amazing. Technologically amazing, heavily debated, hated, loved and everything in between. Here is another one from this house of dark wizardry : The AVOX vocal toolkit.

This is yet another chunk of software that will drive purists (whatever that means this week) crazy, and will be embraced by others. I think this software bundle is pretty incredible. The bundle consists of five plug-ins; DUO, CHOIR, PUNCH, SYBIL, and THROAT.

Antares supplied me with the Native version of this stuff, which was annoying because I couldn't go nuts on our HD3 rig and put

CHOIR on every single channel, just to listen on anything and everything. Instead, I had to act like an adult and simply try these plug-ins on a few vocals at first. Totally fun. The best one isn't even the freaky "THROAT" plug that kind of made me feel gross looking at the not-so-cute graphic of a human esophagus. . . . My favorite is by far the CHOIR plug in. Want one backing vocal to sound like 16? Use this and tweak away at the pitch tracking of those "16 people" singing along and even the timing of the "choir." Pretty amazing, and simple to use. CHOIR worked remarkably well on a couple of violin tracks (courtesy of my bandmate, Carla Kihlstedt) as well.

Working on an amazing song by the band Illumina, I found the DUO plug-in to be just what I needed for the dense arrangements, and super intricate voicings we were working with. When I had a great main vocal take, I could simply duplicate it and keep the intensity

antares

intact — but with the wide sonics and overall "gleam" I was looking for in this context.

I only messed with SYBIL a little bit, the de-esser plug. I have a few other de-essers, including hardware tube and solid-state units that I use all the time. I also have other plug-ins that I find to be simple, intuitive, and work just fine. SYBIL is good and, if you don't have any other de-esser available, will work quite well. Nothing exciting, it just works.

The PUNCH plug-in is kind of neat, but for someone that uses a console to mix, and has a good selection of compressors and other goodies . . . well, it kind of just does what I would do anyway with a main vocal: Make it sit well, give it "impact" and presence, and help to make the overall sonic delivery meet the emotional content right where it "gets you" most. Again, with a strictly "in the box" situation, this plug may help you achieve this.

The THROAT plug-in was the one that really seemed like it was going to be the coolest plug in the bundle. I opened it up on a vocal . . . and . . . it's not really that amazing. The gross graphic made me laugh, the sounds seemed kind of fun, but not that cool. If you taped some cute pictures from a medical journal of a human esophagus to a good parametric EQ and maybe a resonant LPF, you could do about the same thing this plug-in does. It's really neato as a weirdo EQ though, especially for guitar. I found it most useful in this application. Ignoring the "serving suggestions" and putting this cool filter/EQ/something-or-other plug-in on a variety of tracks, the guitar seemed to benefit most.

Overall, this is a really weird, but really cool bundle of stuff from a company that seems hell bent on pushing the limits of good taste, technology, good sounds, and cool ideas for the art of recording. It's totally worth checking out these plug-ins, especially if you work primarily "in the box." —*Joel Hamilton*

IS IT REAL? OR IS IT WAVES?
WAVES SSL 4000 COLLECTION

Glenn Bucci puts the software back to back against the hardware? What'd he find? We'd thought you'd never ask!

Waves announces a new collection of plug-ins that model the character of the SL 4000 factory consoles? Oh yeah . . . and on their web site it states they spent over a year comparing the sonic character of their plug-ins with the hardware version because it was cleared under the license they received from Solid Stage Logic. Waves claims the plug-ins sound virtually identical to their hardware counterparts. Well, we'll be the judges of that.

The Waves SSL 4000 Collection includes three-modeled plug-ins: the SSL E-Channel, the SSL G-Master Buss Compressor, and the SSL G-Equalizer. Included with the software is a PDF manual that explains each of the plug-ins in a clear and well-written format. Also included is an article from the legendary engineer Bob Katz on mastering. This gives the impression that not only could these plug-ins be used during mixing, but also during the mastering stage. I found Bob's article very helpful for some basic concepts about mastering. However, if you plan to use the plug-ins for mastering, I recommend reading Bob's book on the subject (*Master Audio: The Art and the Science*) for a more in depth explanation on EQ and compression.

Graphically, all three plug-ins are very pleasing to look at, and are of a good size. Each knob has numerical indicators on them to match the look of a SSL mixer. However, when you put a mouse over a knob a small box appears below and gives you a digital number when you increase or decrease the value. You can move from 1.2, 1.3, and 1.4 with a mouse pretty easily. Installing them on my PC in conjunction with Cubase SX 3 was pretty easy. However you have to have an ilock for Waves software now. Many have complained about this, but other companies such as Steinberg are also taking that route to reduce piracy. I needed a little direction to get things going, but Waves tech support is first rate, and I was running the software within minutes.

Like all Waves plug-ins, there is the Waves System Bar. These commands include Undo, Redo, Setup A/B, Copy A/B, and save. By pressing the ? button, it will open the manual for the plug-in you are using. In using it in Nuendo/Cubase as a VST, it also includes the read and write buttons for automation, as well as the bypass button.

SSL G-Master Buss Compressor

Waves confirmed that this compressor is different than the one on the E-Channel strip. The compressor on the channel strip is

G-MASTER BUSS COMPRESSOR

Solid State Logic

intended for the mixing stage with different instruments and voices. The G-Master Buss is more for mastering or could be used nicely on a group channel. The plug-in has the following specs:

Threshold sets the operating level for the knee of the compressor. Threshold is continuously adjustable from −15dB to +15dB.

Make Up Gain compensates for a change of signal level due to compressor activity. Continuously variable from −5dB to +15dB.

SSL E-Channel

This channel strip is spread out and every control easy to see compared to the Waves Renaissance Channel. My suggestion to Waves is to make the Renaissance Channel screen larger like they did with this plug-in The specifications on the E-Channel strip are the following;

Equalization

Low-Pass Filter: 18dB/octave slope, adjustable from 20kHz to 3kHz.

High-Pass Filter: 18dB/octave slope, adjustable from15Hz to 350Hz.

High (HF): Choose from shelf (16.5dB/octave boost or cut) or bell shape (18dB/octave boost or cut with a fixed Q of 2.5). Range is from 1.5kHz to 16kHz.

High-Mid (HMF): Range is from 600Hz–7kHz, with an adjustable Q from 0.1 to 3.5. Gain varies from ±15dB when Q is set to 0.1 to ±18dB when Q is set to 3.5.

Low-Mid (LMF): Range is from 200Hz–2.5kHz, with an adjustable Q from 0.1 to 3.5. Gain varies from ±15dB when Q is set to 0.5 to ±18dB when Q is set to 3.0.

Low (LF): Choose from shelf (16.5dB/octave boost or cut) or bell shape (18dB/octave boost or cut with a fixed Q of 2.5). Range is from 30Hz to 400Hz.

Compressor/Limiter

Ratio/Slope: Variable from 1 to infinity (limiting).
Threshold: Variable from +10dB to –20dB.
Attack: Normally auto-sensing (slow), switchable to 1ms (fast).
Release: Variable from 0.1 to 4 seconds.

Expander/Gate

Range: Variable from 0 to 40dB.
Threshold: Variable from –30dB to +10dB
Attack: Normally auto-sensing (slow), switchable to 1ms (fast).
Release: Variable from 0.1 to 4 seconds.

Gate: Toggles from Expander function (default) to Gate function.

Waves advised the dynamics section consists of a soft-knee compressor/limiter with an expander/gate. There is automatic gain make-up, which is calculated based on the Ratio and Threshold settings. This assists in having

Solid State Logic

a steady output level. The attack time is program sensitive, and response to the signal that is being fed into it as well. The threshold allows the signal to decay below its opening level. The dynamics can be switched from pre EQ (default) to post EQ by clicking on the CH Out button.

The EQ is a four-band system that allows the Q to be changed in the high-mid and low-mid section. There's also a high-pass filter (18dB octave) and low-pass filter (12dB octave). The equalizer can be switched into the dynamics side chain by selecting the DYN S-C button. What was said about the G-EQ in regards to sound and workflow is very similar with the E-EQ. Once again, I found this to be a very useable EQ.

In running a bass guitar through, it was easy to get good results quickly. The compressor was able to soften the transients while still maintaining the fullness of the original bass sound. In reducing the ratio and increasing the output, I was able to get a similar sound my UAD 1176. I found the UAD to be a little punchier in comparison, but both did a good job. There was a little amp noise that became more dominant as I increased the gain control. However, tho EQ was very effective in eliminating it without affecting the sound of the bass with a narrow band setting. You are able to alter the high and low bands from a bell to shelf slope.

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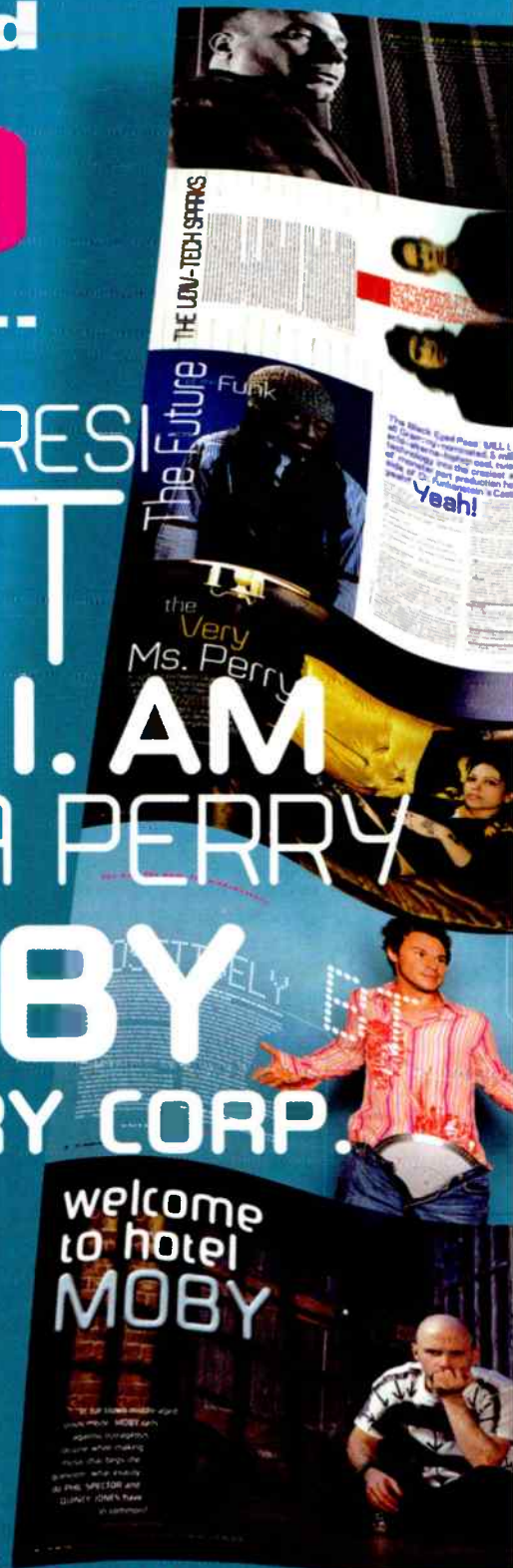
On a main vocal, I found the compressor did a good job in evening it out. Not as smooth sounding as the UAD LA2, but in different situations the SSL compressor could be a better choice. The EQ worked great with reducing the mids and gently adding a little more in the high freqs. The little color added was pleasant. Once again, I prefer to leave the analog button turned on. I was also able to use the gate in removing background noises very effectively and smoothly. I was advised that the plug-in does not have a look ahead capability but has a very fast RMS detector, which handled many situations from putting it with a reverb for snare drum, to getting rid of unwanted background noises. On acoustic guitar, I was able to shape the sound very effectively with the EQ and give it a little more punch in the mix with this channel strip.

I did have some questions that the manual was not able to answer, and Mike Fraid, who is the Product Manager of the Waves SSL 4000 Collection, helped clarify my inquiries.

What type of technology was used to get the sounds of the SSL?
Mike Fraid: I cannot reveal this. What I can tell you is that, in order to get the best sound match on the model, we spent months measuring any possible behavior of the analog hardware, and then slowly modeled every piece of the puzzle until the "picture" was just right. It took us a year of very intensive work, but I think it was worth it.

I think what makes these plug-ins sound so great is the fact that we didn't compromise on anything sound-wise. We improved the sound and insisted on holding back the release of the product until we approved the sound quality. It had to be practically the same as the hardware unit. We even got a cancellation of 30dB between the real hardware and the plug-in. This is something that I think you can't get from two hardware units. When we sent it over to SSL for evaluation they were amazed by the resemblance to the hardware units.

Is this a modeling or convolution type of process?
MF: This is a straightforward modeling type of processor. No convolution is involved in this modeling.

Is there anything that you added or that is different from the real SSL equipment besides the Waves systems bar?

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MF: The only things we added were some conventional features to Waves plug-in, like a precise digital metering. You can't have that in the analog domain. We also added the trimming option on the SSL G-EQ. Additionally, we added the option to turn off the "analog" behavior — something you can't do on the analog unit.

OK, now what kind of slope is used for the fader out?
MF: The slope is kind of an s-shape slope, but it is very unique in design. Toward the end of the fade, there will be a slight sustain before fading out completely. It took us about a month to model the exact curve of the Buss compressor fade.

I was able to borrow an SSL XLogic Super analog Channel strip for a comparison to the Waves SSL plug-ins. Though the analog piece of gear went through an Apogee converter at 88, which the plug-in did not, I found the character of the EQ and compressor to be very close to the hardware version. Technology on modeling hardware is definitely getting much better compared to just a couple of years ago. In regards to CPU usage, thankfully Waves was able to keep the CPU usage down. I found these plug-ins used about the same amount of processing as my Waves Renaissance plug-ins, which is quite reasonable.

A ballpark price for the Native plug-ins is around $800 and TDM $1,600. I found myself pretty impressed with the sound of these plug-ins regardless of them having the "SSL" name on them. However, knowing that you have plug-ins that give you a very close sound to the high end SSL EQ and compressors does make one feel good since most of us cannot afford an SSL mixer. If you are looking for some good plug-ins that offer a channel strip, nice EQ, and a mastering compressor, the Waves 4000 SSL collection fits the bill nicely.

QUICK PICK

SOUNDELUX E47C TUBE MICROPHONE [$3,900, soundeluxmics.com]

Soundelux continues to recreate the classic, out-of-production German mics of the 1950s, using today's more stable and reliable tube electronics. The E47c is their latest version of the 1950's Neumann tube mic, the U47, which for many years has had the enviable reputation as "the big sound" vocal mic. With the 12dB at 100Hz boost the Soundelux E47 mic is capable of, you're definitely going to get that big sound, and then some.

The mic comes shipped as cardioid only, but there's a note in the manual that says by removing the grille you can gain access to a switch that changes the pickup pattern. Not true — and very confusing. There's also no roll-off switch for the low frequencies, and with its extended low end, rumble could be a problem. A shock mount and 20' power supply cable are included. I was also kind of surprised at the skimpy documentation that came with this mic. For the amount of money you're spending, I would expect more than a flimsy, one-page "manual." No spec sheet or frequency chart of any kind is included. These have to be downloaded from their website.

Anyway, as you might guess on the basis of years of previous raves, this mic was a winner in the lead vocal category. The first test for this mic was recording female vocals for a local country project I was working on. After trying different preamps, the **Langevin** sounded the best for this particular singer. Comparing the Soundelux E47c to our **Lawson L47MP** mic that would normally be my first choice, the Soundelux added a lot of personality to the vocal, and really brought out the warmth in her voice. While the Lawson was more versatile with its multiple pickup patterns, the Soundelux had a quality to it that really made the vocal jump out of the track.

I also had the opportunity to compare the E47c with a **Neumann 147** tube mic, and while the Neumann brought out the singer's lower midrange better than Soundelux, it was a little muddy sounding in comparison, and didn't really capture the character of this female vocalist as well as the Soundelux.

Switching over to male lead vocals for a funk driven project, I found that by placing the singer three inches back from the mic (with a pop filter), I could really get that fabled bottom end. It's a neat sound; you can actually feel the low notes.

As a fun comparison, I tried tracking the lead vocals for the hardcore band Sad Boy Sinister with this mic. It couldn't really handle this forceful style of singing, but moving the singer back until he was about a foot off the pop filter worked pretty well. This mic wouldn't be my first choice for that style of music, however.

For acoustic guitar, the E47c paired with an Ampex tube preamp was my choice for a guitar track that needed a 1970s-ish, Neil Young sound. I liked the way the mic brought out the ringing, rich lower mids of the guitar, and there was enough body to really fill out the track.

It also worked well as the main mic for a live guitar and vocal recording. Placing the mic about two feet back, halfway between the guitar and the vocalist, it effortlessly captured the intimate performance.

We also tried using this mic as a room mic in a fairly live, 15'x20' drum room with a local punk rock band. The five-piece drum kit was set up in the rear third of the room, and I placed the E47c about 12' from the front of the kit. Using our **Focusrite 6** as the preamp, the mic actually sounded a lot like an SM57! Switching to our **Millennia TD-1** preamp was a much better match; the mic sounded fuller overall and the high end was a little more extended.

For my final test, tracking a trumpet solo, I actually ended up preferring the sound of an AEA Ribbon microphone to the E47c. With its warmer sound, the **AEA R84** ribbon mic really fit the sound of this particular trumpet. The Soundelux E47c picked up a bit too much of the sound of the trumpet's mouthpiece and not enough of the instrument's tone.

Like many tube mics that are known for their musical character, this cardioid-only mic might not always be the right choice for the vocalist or instrument you're recording. This mic in particular can be sensitive to voices that are prominent in the upper midrange, causing them to sound slightly spitty and nasal, as if the singer has a cold.

That said, there's a reason good vintage tube mics command top dollar — they can create and project a vocal personality that comes through in a mix. The E47c tube mic from Soundelux, when matched with the right singer and the right preamp, can sound magical. — Bart Thurber

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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M-AUDIO

M-AUDIO PRO SESSIONS 24: ANTONIO DILILLO'S SIGNATURE ELECTRO PATTERNS, VOL. 1

Contact: M-Audio, m-audio.com
Format: 1 CD-ROM, 24-bit/44.1 kHz ACIDized WAV and REX2 files
Price: $49.95

I've long been wary of pattern collections, but this one? Well, it delivers. Antonio Dilillo of Cluster Sound has put together some 1.3GB of nasty electro patterns with characteristic Italian flair. The synth loops are tight, funky, and original, and the breaks are remarkably inventive as well, fully capable of keeping the wallflowers' heads nodding while the dance floor shakes. All are steeped in European techno traditions while remaining faithful to the early electro sound. Tradition aside, Signor Dilillo is certainly not afraid to use all the technology available, and this collection has a distinctly digital feel, but not sterile by any means (quite the opposite, in fact, these loops are downright dirty!). The industrial influence on these patterns is apparent throughout, especially in the breaks and beats. In short, the glitch, the grime, and the glory of electro are represented well in this latest edition of Pro Sessions 24. Oh, and the 24 does refer to sample size: All files are 24-bit, 44.1kHz and available as ACIDized WAV or REX2 files. If you're looking for new ideas or for that certain something to add to a loop-based electronica project, Electro Patterns will scratch that itch. In fact, I've got to get back to this joint I'm working on now. —*Sam Wheeler*

QUICK PICK

GML 2032 [$3,000, massenburg.com]

Pop up to allmusic.com and enter the name "George Massenburg." Click over to his credits and prepare to be impressed. The man's musical resume reads like a "who's who" of stellar artists. But Massenburg's engineering/mixing/producing credits are only a part of the story. He's very active as an educator, and is a big part of projects such as the National Recording Preservation Board of the Library of Congress, and the P&E (Producers and Engineering) Wing of the Recording Academy.

But even that isn't the whole story; Massenburg is the "GM" in "GML" — George Massenburg Labs — where he designs and builds high-end professional audio equipment. In fact, as a designer, he's credited with coming up with the concept of parametric EQ. Impressive credentials. . . .

So when a piece of GML equipment arrives at your studio door, you rightfully expect a lot. And in my experience, you're going to get it. GML equipment doesn't tend to be loaded with lots of unnecessary features and extraneous garbage. When George designs something, it's functions are targeted at maximum usefulness in the studio, with minimum hassle and messing around. Since George is an engineer himself, he knows what engineers need, and his boxes are intended to meet that need.

The 2032 I received for review is no different. The 2032 is a single-channel unit comprising the mic preamp from the GML 8300 and the 4-band fully parametric EQ from the reference-quality 8200. The transformer-less preamp has a stepped gain control with 5dB increments, and a continuous Fine control with ±5dB range. The preamp can take its input from the back panel mic in or the front panel instrument input. Immediately following the preamp is a switchable high-pass filter with 40Hz and 100Hz settings. A switchable insert loop lets you insert another processor between the preamp and EQ, or operate the preamp and EQ completely independently, with their own ins and outs. The EQ is also bypassable if you just want to use the pre. All connections are on XLRs. Unlike other GML products, the power supply is built-in and included in the price.

But this is going to be short and sweet: The 2032 *kills*! In other words, it sounds great, and is easy to use. The preamp is clear and uncolored, with a rich, detailed sound. It's definitely among the best I've used for straight-wire applications. The filter is transparent, and the EQ seems to have no "bad" settings. You can crank the gain and somehow things remain musical sounding. Very impressive. I used the 2032 to track vocals, steel- and nylon-string acoustic guitars, and electric guitar. I used the preamp and EQ while tracking, and the EQ without the preamp during mixdown. In a word, I was *thrilled*.

I loaned the 2032 to engineer/producer David Stewart, who took it to his DSL Studios in Louisville, Kentucky, where he used it on rock band sessions. His comments: "The GML 2032 has overall amazing sound. In every way I can measure or think about sound quality, this thing was among the best I've ever used. Very, very clean and clear sounding, without the slightest hint of stridence."

David was also impressed with the 2032's EQ section: "It really is one of the sweetest sounding EQs I've ever heard. It's hard to describe the character. Perhaps 'smooth and silky'? It's clearly a fine, precision instrument."

The GML 2032 isn't cheap — it clocks in at $3,000 retail. But you're buying into one of the best preamp/EQ channel strips available. The preamp is rich and detailed, the EQ is powerful and sweet, and you can even separate the preamp and EQ and use them independently. The 2032 excels at clean, uncolored recording applications. I loved it on virtually every source for its detail and rich tone. Another winner from the G-man. —*Mitch Gallagher*

AD ORDER FORM

An ad in EQ's Classifieds reaches more than 40,000* serious musicians for only $2.40 per word plus $7.00 for an address. Minimum charge: $25.00. Please underline words to appear in bold type and add $0.50 per every bold word. Please indicate clearly any words to appear in all caps and add $0.25 per every cap word. Each phone number, e-mail address, or website address counts as one word. Display Classifieds are $152.00 per vertical column inch. Color (Display Classifieds only): 25% extra. 3 months minimum schedule required. Deadlines are the 10th of the month, 2 months prior to cover date (for example, July 10th for the September issue, on sale in early September). All Classified ads are also posted on our Website (www.eqmag.com) at no additional charge. Businesses must list business name in ad. All ads must be received in writing, paid in full in advance. All ads must be music-related. Retail advertisers may not list discounted prices or percentages on specific models, unless items are used or discontinued. Advertisers must provide us with complete name, street address, and phone number, whether or not included in the ad copy (you may list a PO Box address in your ad, however). Mail ads to: EQ Classifieds, Attn: Darlene Labrecque, 2800 Campus Dr. San Mateo, CA 94403. FAX (if paying by MasterCard, or Visa): (650) 513-4616. For more information, call Darlene Labrecque at (650) 513-4217; E-mail: dlabrecque@musicplayer.com. (*Audited circulation; does not include pass-along rate.)

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Room with a VU

by Roberto Martinelli

STUDIO NAME: Nightsky Studios
LOCATION: Waldorf, Maryland
CONTACT: nightskystudios.org
KEY CREW: Ron Vento
CONSOLE: Focusrite Control 24 Console with 16 pres
COMPUTERS: Macintosh G5 w/ dual 2.5GB processors with Pro Tools HD3 ACCEL, Digidesign 192 I/O, 96 I/O, Sync I/O,
PRES: dbx 386, Drawmer 1960 Tube, Focusrite Voice Master Platinum, Neumann True Precision 8
MONITORS: Alesis Monitor One, ElectroVoice T52+, Mackie HR824, Tannoy PBM 6.5 II, TOA 22 ME, 312 ME
OUTBOARD: Alesis DM5, Empirical Labs Distressor EL8, Lexicon PCM 80, TC Electronics Wizard Finalizer, Valley People Compressors
MICS: AKG 414, 535, C 2000 B, C451 B matched pair, D112, Audio Technica 3525, Clip Mics, ElectroVoice ND 408B, PL20, Neumann TLM 103, U87, Sennheiser 421, Shure Beta 57, 57A, 58, KSM32, SM57, SM81, SM94
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MISCELLANEOUS AND BACKLINE: Alesis ADAT, DA88, RA100, Ampeg SVT-4-PRO, 4x10, 1x15 Crown PowerTech 2, Dean Markley 4x12, Furman HDS6, HR6 Boxes, Genz Benz 2x15, Hafler Transnova P3000, Marshall 800 4x12, 900 4x12, JCM 900, Mesa Boogie 4x12, Triple Rectifier, Red Box, Roland XP30, Sony TC WR 665, Tascam 202 MKII, CD 4000 MKII, CD RW5000, DA 40 2, Whirlwind Director, Hot Box
NOTES: There are two reasons why the those who are, those who aspire to be, and those who are content just pretending to be top dogs in the Washington area flock to Nightsky Studios when the time comes to throw down their tracks. First off, and most obvious of all, Nightsky's got have some pretty swank gear. Secondly, they don't charge standard pro rates. Hell, as of 2005, you could mosey on up and hire Ron Vento's expertise (at being an expert) for a meager $50 an hour.

The result is that Nightsky's business has exploded. According to Vento, "there isn't a style of music we DON'T do." Jazz, hip-hop, small classical projects, pop . . . oh yeah, and metal, of course (in his time away from the boards Vento acts as the "everything-but-drummer" for veteran blitzkrieg death metal band Aurora Borealis). Plus, since he's such a pal and a true supporter of the music scene, he'll even let you stay with him if he especially likes you while you record at Nightsky — just keep your hands off of the metal relics and don't even look at the Pringles.

And as far as the self-appointed "production fascists" go, Vento is the nicest jackbooted console totalitarian you'll ever come across. But he puts the foot down if he gets wind of a band conspiring to record at Nightsky and then mix elsewhere. Vento, craftsman that he is, takes the entire process of production of an album personally, and seriously.

Vento's credo? "It's all about sound. There's no 'always' in recording. If you fall into a rut 'always' doing something, you're not making albums right, in my opinion." ▢

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